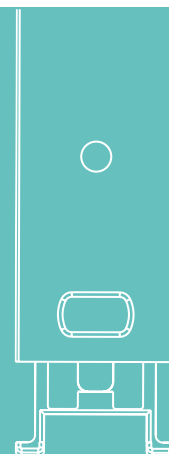
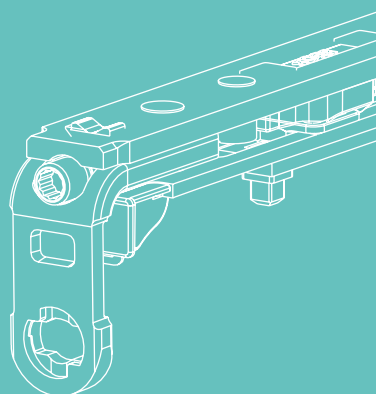




TECHNOLOGY IN MOTION

MACO MULTI-MATIC

TILT AND TURN FITTINGS



ASSEMBLY INSTRUCTIONS

Exclusively for certified specialists!

Table of contents

Important Information, abbreviations	4 - 5
Application ranges	6 - 9
Weights, sizes, diagrams	6 - 9
Fabrication instructions	10
Tilt&Turn fittings for 1-sashed windows	11 - 30
Fittings combination MM	11
Fittings combination MM-KS	12
Installation of the sash fittings components	13 - 19
Installation of the frame fittings components	20 - 30
Tilt&Turn fittings for 2-sashed windows	31 - 37
Fittings combination MM	31
Installation of 2-sashed windows fittings components MM	32
Fittings combination MM-KS	33
Installation of 2-sashed windows fittings components MM-KS	34 - 37
Tilt-Only fittings	38 - 45
Fittings combination MM	38 - 39
Installation of tilt-only fittings components MM	40 - 41
Fittings combination MM-KS	42 - 43
Installation of tilt-only fittings components MM-KS	44 - 45
Half round fittings	46 - 55
Fittings combination MM	46 - 47
Fittings combination MM-KS	48 - 49
Installation of half round fittings components	50
2-sashed half round window MM	51
Half-round fittings for use on segmental arched, angled or elliptical arched windows	52 - 55



Angled window fittings

Fittings combination MM

Installation of angled window fittings components MM

Fittings combination MM-KS

Installation of angled window fittings components MM-KS

56 - 65

56 - 57

58

59 - 60

61 - 65

Important Information

Target audience

This documentation is intended exclusively for specialist companies and certified specialists.
The work-steps described herein may only be carried out by certified specialists.

Instructions for use

- › Unless otherwise indicated, all measurements are made in millimetres.
- › Mount all hardware parts professionally as described in this manual and observe all safety instructions!
- › All diagrams are only symbolic.
- › Further technical documents can be found in our online catalogue (TOM) at extranet.maco.eu
- › This print document is constantly being revised and is available for download in the current version at www.maco.eu erhältlich.
- › Printing errors, mistakes and changes are reserved.
- › Please send feedback or suggestions and ideas for improvements on our instructions by email to: feedback@maco.eu

Material notes

- › The hardware parts described in this guide are made of stainless steel or galvanised passivated steel and sealed in accordance with DIN EN 12329. They must not be used in environments with aggressive, corrosive air content.
- › Do not use acid-curing sealants, as these can lead to corrosion of the hardware parts.
- › The window elements may only be surface-treated before the hardware is installed. Any subsequent surface treatment may restrict the functionality of the hardware. In this case, no warranty claims can be made against the hardware manufacturer.

System descriptions

- › DT > Dual-drillhole version
- › AS > Surface-mounted fittings



Abbreviations

SRH = Sash rebate height

SRW = Sash rebate width

ST = Striker

FE = Faceplate extension

CL = Centre lock




Application ranges

for Tilt&Turn windows and doors




Maximum sash weights

Max. 100 kg
Pivot post and scissor stay hinge DT with corner supports without rebate-leg screw-fixing.
Max. 120 kg
Pivot post and scissor stay hinge AS and additional scissor-stay.
Max. 130 kg
Pivot post and scissor stay hinge DT, additional scissor-stay and corner support with rebate-leg screw-fixing.

Sash rebate dimensions BS 15

Standard 	SRW 320 SRH 360	
Max.	SRW 1650 SRH 2600	However not over 3 m ² total surface area and/or 130 kg sash weight and the width-to-height ratio SRH : SRW max. 1 : 1,5.
Min. SRH 	SRW 320 SRH 270	With short corner-drive (long leg horizontal), stay guide 400 and drive-gear 430
Min. SRW 	SRW 260 SRH 360	With short corner-drive (long leg vertical), stay guide 400 and drive-gear 430

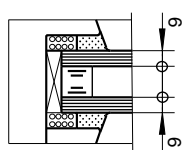
Sash rebate dimensions BS 6.5

Standard 	SRW 320 SRH 455	
Max.	SRW 1650 SRH 2600	However not over 3 m ² total surface area and/or 130 kg sash weight and the width-to-height ratio SRH : SRW max. 1 : 1,5.
Min. SRH 	SRW 320 SRH 365	With short corner-drive (long leg horizontal), stay guide 400 and drive-gear 660
Min. SRW 	SRW 260 SRH 455	With short corner-drive (long leg vertical), stay guide 400 and drive-gear 660

Diagrams for determining permissible sash sizes for windows and doors

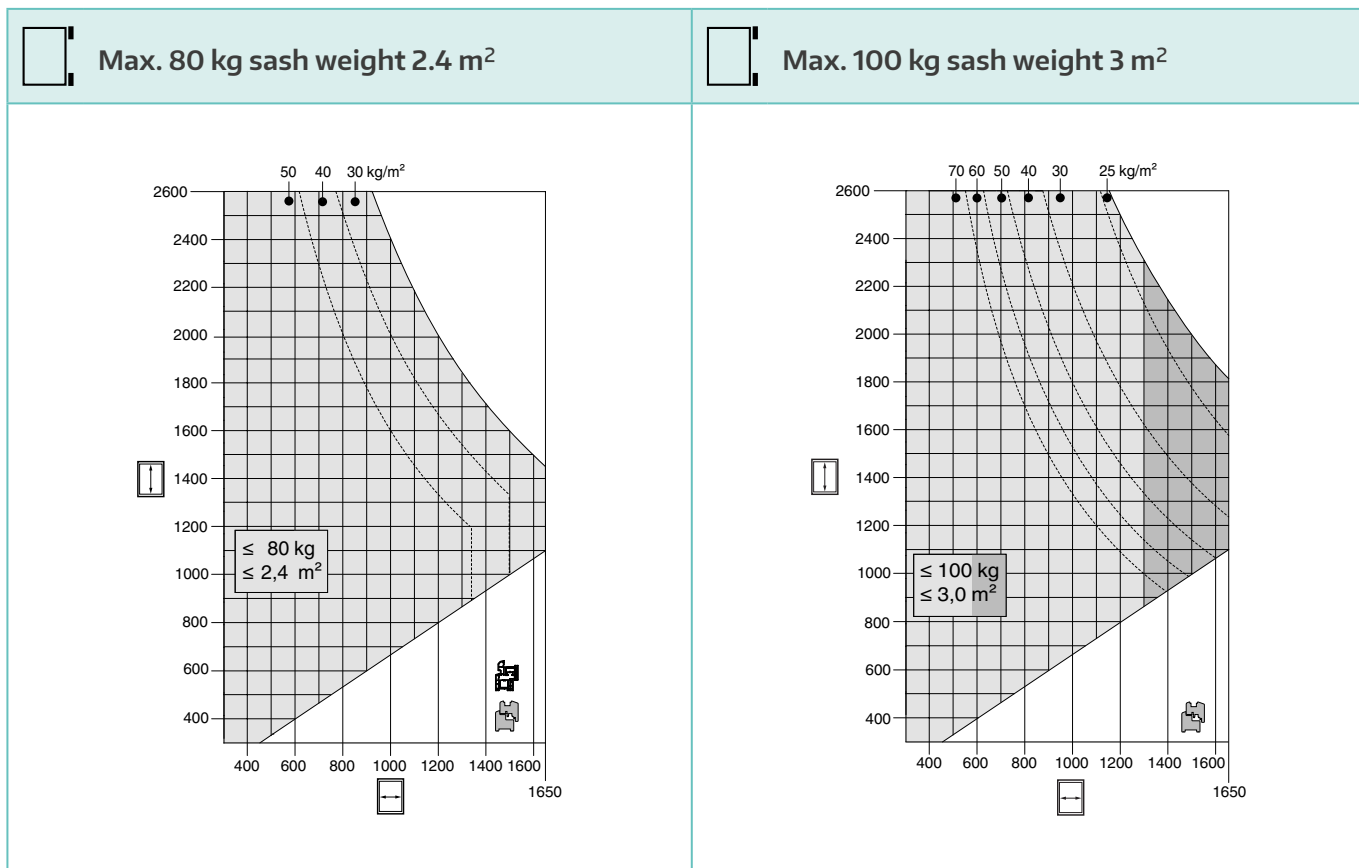
Glass thickness mm	24	22	20	18	16	14	12	10	8
Weight kg/m ²	60	55	50	45	40	35	30	25	20

1 mm = 2,5 kg/m²



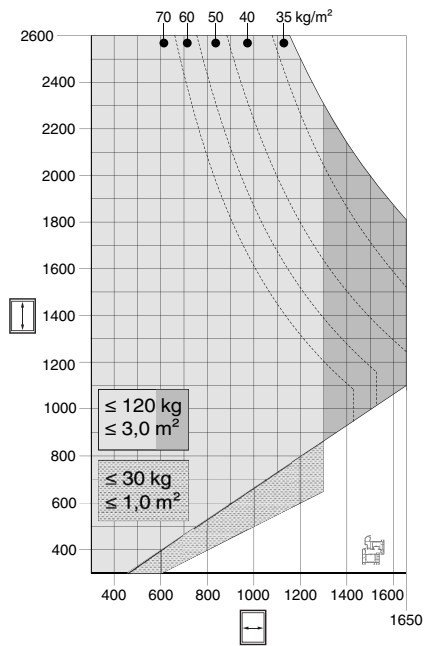
= Glass thickness 12 mm

All sash sizes within the application range and a width-to-height ratio of SRW : SRH ≤ 1.5 : 1 are permissible at a glass weight of less than 30 kg/m²!

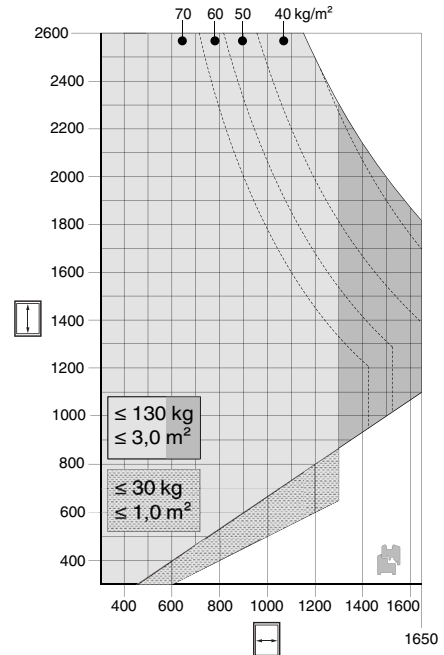




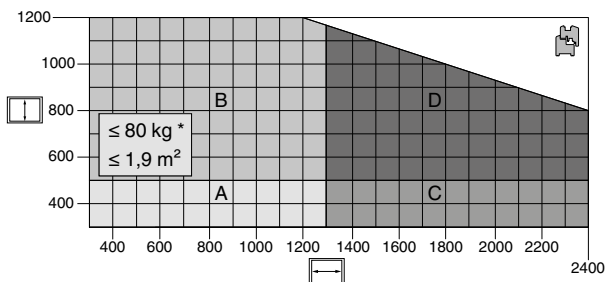
Max. 120 kg sash weight 3 m²



Max. 130 kg sash weight 3 m²



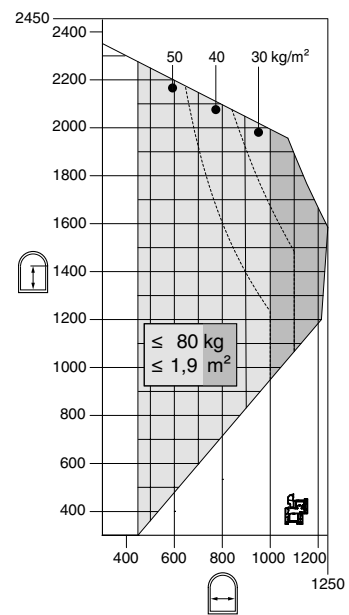
Tilt-Only windows max. 80 kg sash weight



- A - 1 Tilt-Only stay arm + restrictor and cleaning stay size 1
- B - 1 Tilt-Only stay arm + restrictor and cleaning stay size 2
- C - 2 Tilt-Only stay arms + restrictor and cleaning stay size 1
- D - 2 Tilt-Only stay arms + restrictor and cleaning stay size 2



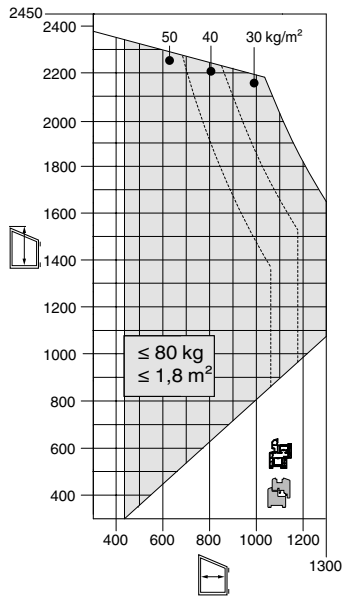
Half round window with half-round scissor-stay max. 80 kg sash weight



SRH = start of half round



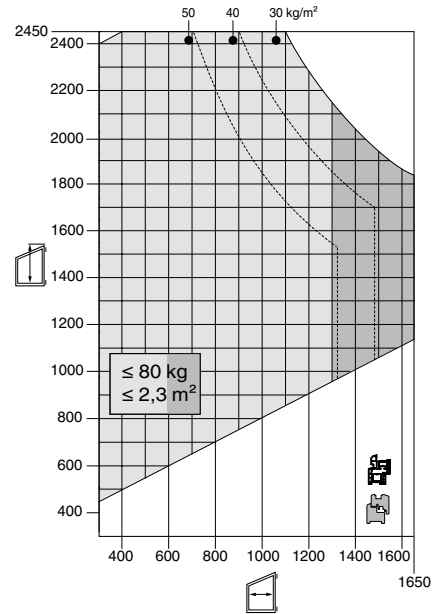
**Anged window with angled scissor-stay
max. 80 kg sash weight**



SRH = refers to max. hinge-sided sash height



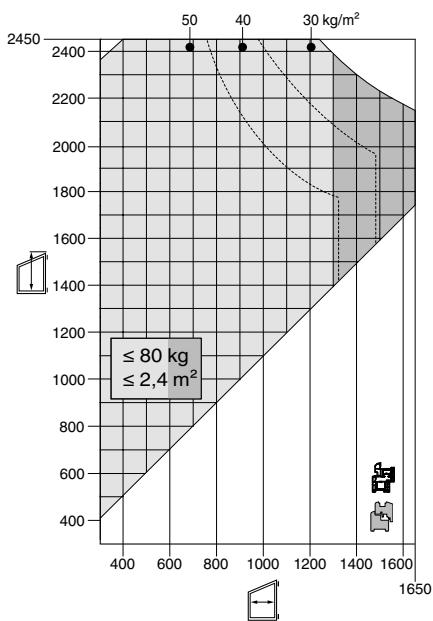
**Anged window with angled scissor-stay
max. 80 kg sash weight**



SRH = refers to max. hinge-sided sash height



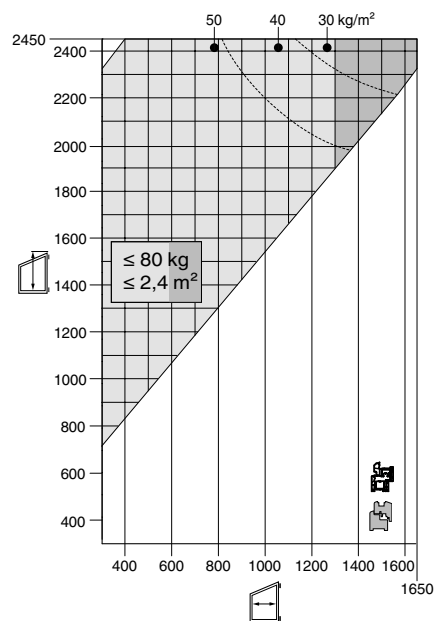
**Anged window with angled scissor-stay
max. 80 kg sash weight**



SRH = refers to max. hinge-sided sash height



**Anged window with angled scissor-stay
max. 80 kg sash weight**



SRH = refers to max. hinge-sided sash height

Fabrication instructions

Load-bearing components for sub-assemblies with security relevant characteristics



DANGER!

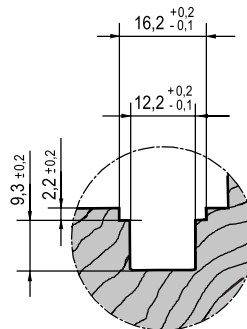
The bearing parts must be screwed in place in accordance with the requirements of the TBDK guideline (Gütegemeinschaft Schlösser und Beschläge [quality assurance association for locks and hardware] - www.schlossindustrie.de).

Screw dimensions

For fastening of fittings we recommend screws of size 4 x 30 mm with a screw-head diameter of 7 mm.

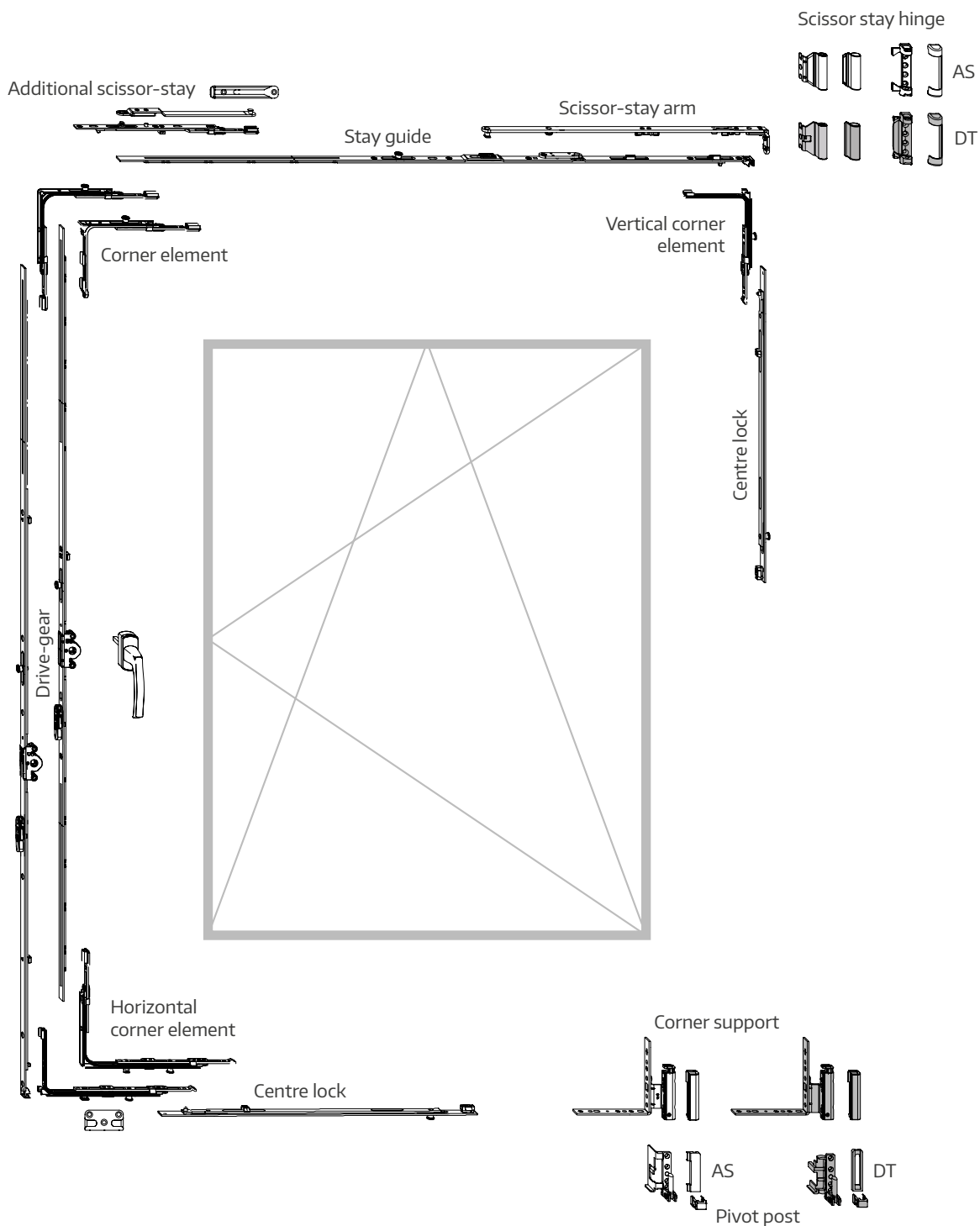
Fittings groove

The fittings groove required for the installation of tilt-and-turn fittings must have the following profile:



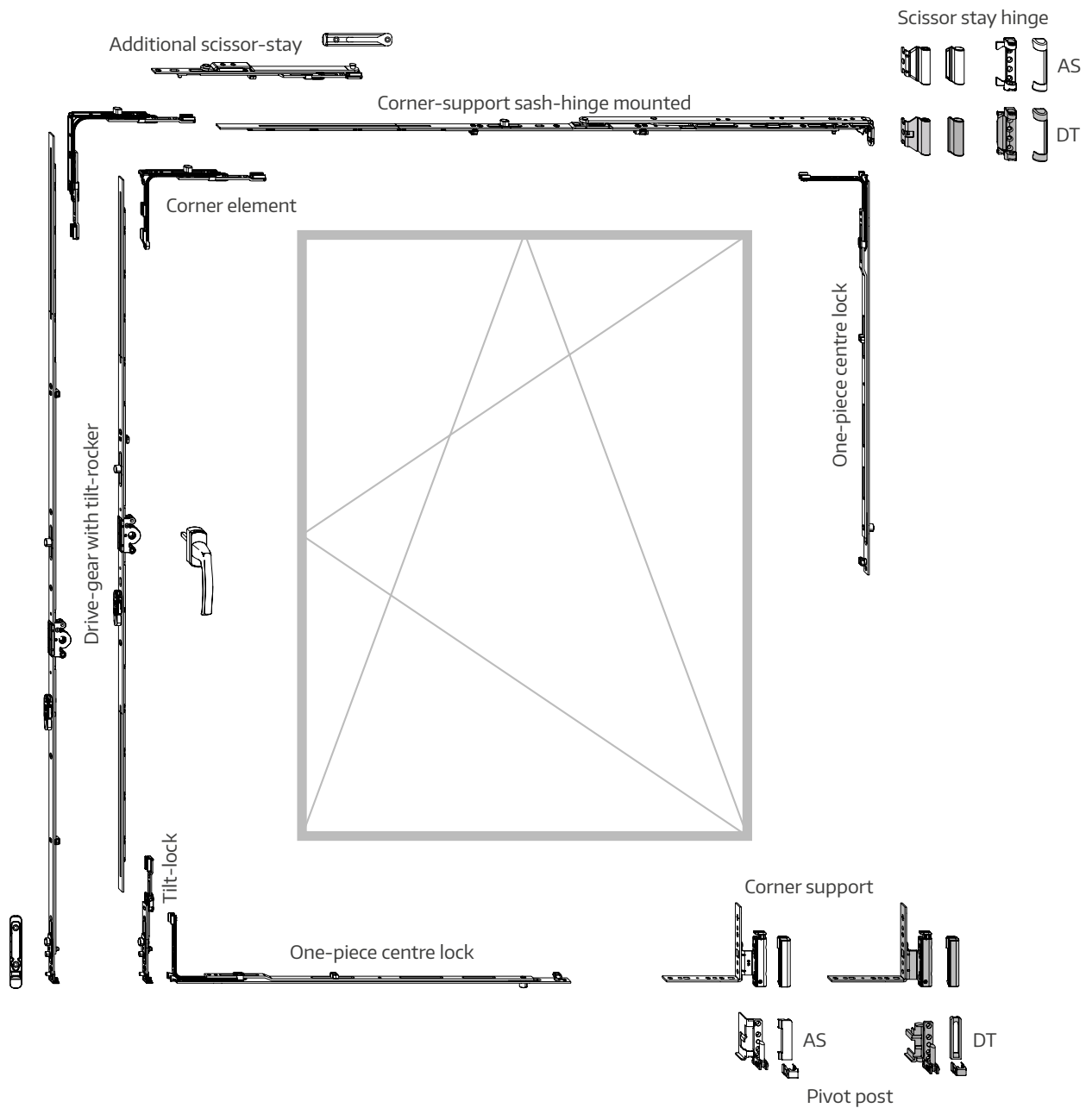
Tilt&Turn fittings for 1-sashed windows

Fittings combination MM



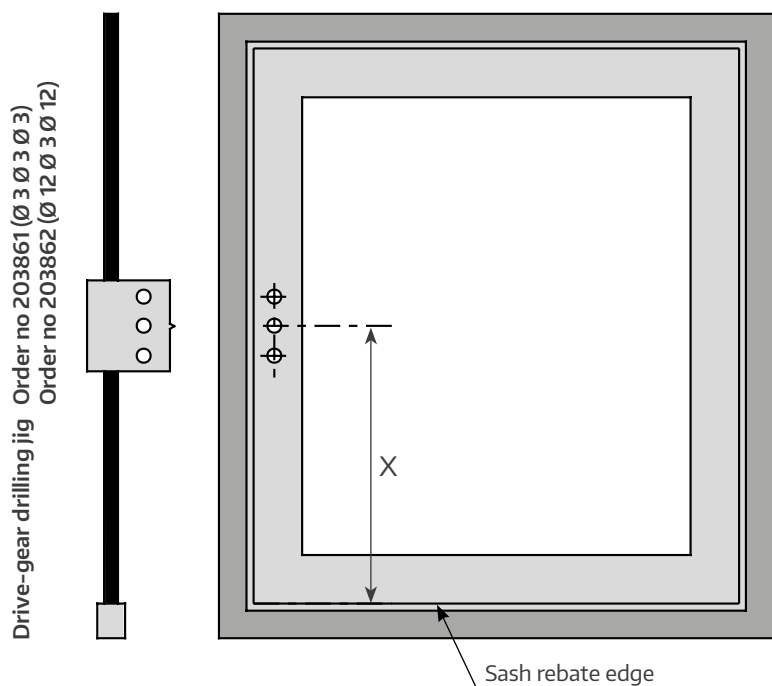
Tilt&Turn fittings for 1-sashed windows

Fittings combination MM-KS



Installation of the sash fittings components

Handle drilling



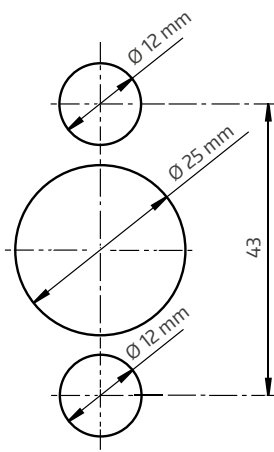
Dimension X	Size
125	430
190	660
300	840
400	1090
500	1340
500	1590
600	1590
500	1700
700	1700
1050	1950
1050	2200
1050	2450

Adjust the drive-gear drilling jig (order no. 203861, 203862) to suit the drive-gear, allow it to lie up against the sash rebate edge and predrill with a Ø 3 mm and Ø 12 mm drill.

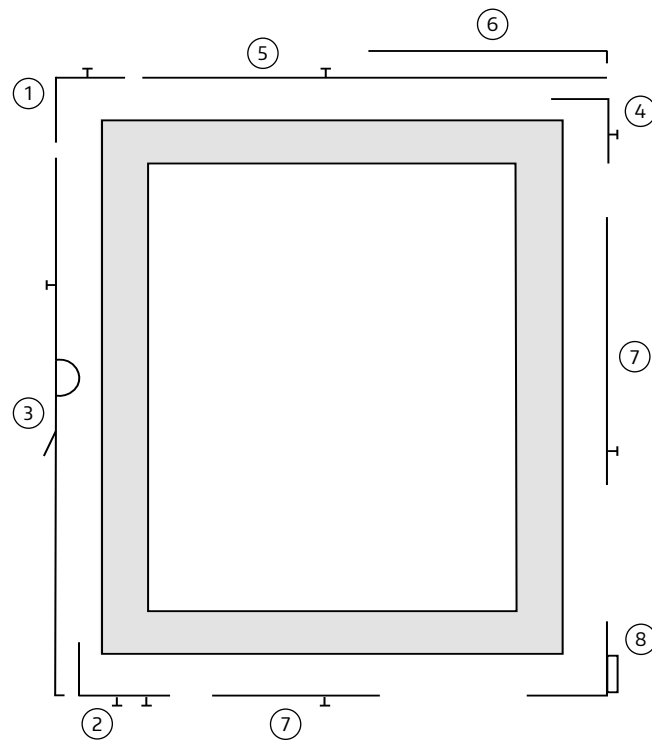
In the case of variable handle-height drive-gears, mark the sash centre, line up the drive-gear drilling jig with the notch on the side and predrill.

Drilling-hole patterns

For window handles with Ø 12 mm lugs



Installation and cropping of the MM sash fittings components



1. Install the **corner element** ①.
2. Install the **horizontal corner element** ②.
3. Crop the **drive-gear** ③ and screw-fix together with the **corner elements**.*
4. Install the **vertical corner element** ④.
5. Crop the **stay guide**** ⑤ (Fig. 1) and screw-fix together with the **corner elements**.
- 5.1. Mount the **scissor-stay arm** ⑥. Clip on the stay support arm to the scissor stay end-bracket and turn the bayonet coupling 90° with a TORX 20 bit (Fig. 2) – note execution!
6. Install the **centre lock** ⑦ (from a SRW/SRH over 1000 mm***).
7. Insert and screw-fix the **corner support** ⑧ to the rebate-leg.
8. The centre-fixings (preset centred cam-fixing) are undone upon operating the fittings for the first time.
9. The sash lifter on the drive-gear must be activated by tilting it outwards.

* On **T&T** drive-gear 660 and stay guide 600, the horizontal and vertical corner elements are to be additionally screw-fixed in the groove base!

** From SRW 1300 mm or 100 kg sash weight: use an additional scissor-stay!

*** SRW and SRH of 1000 mm is a MACO recommendation, adhere to the profile manufacturers' specifications!

Fig. 1 - Cropping pattern

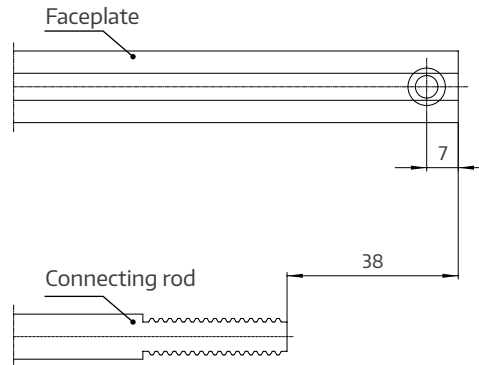
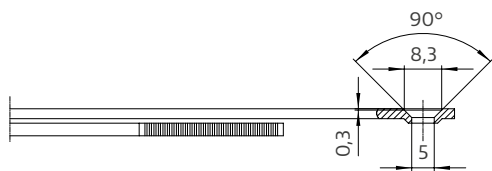


Fig. 2 - Bayonet coupling

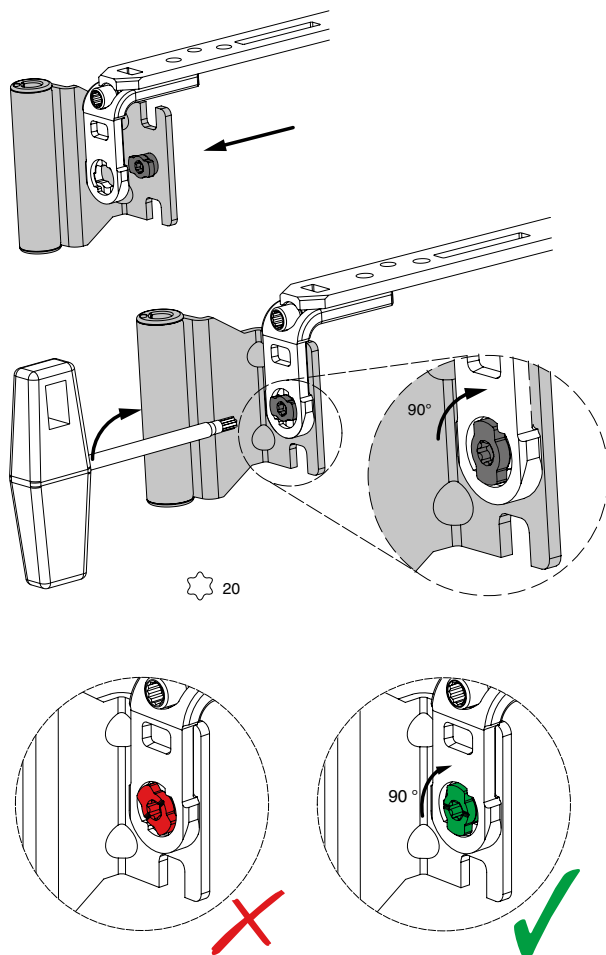
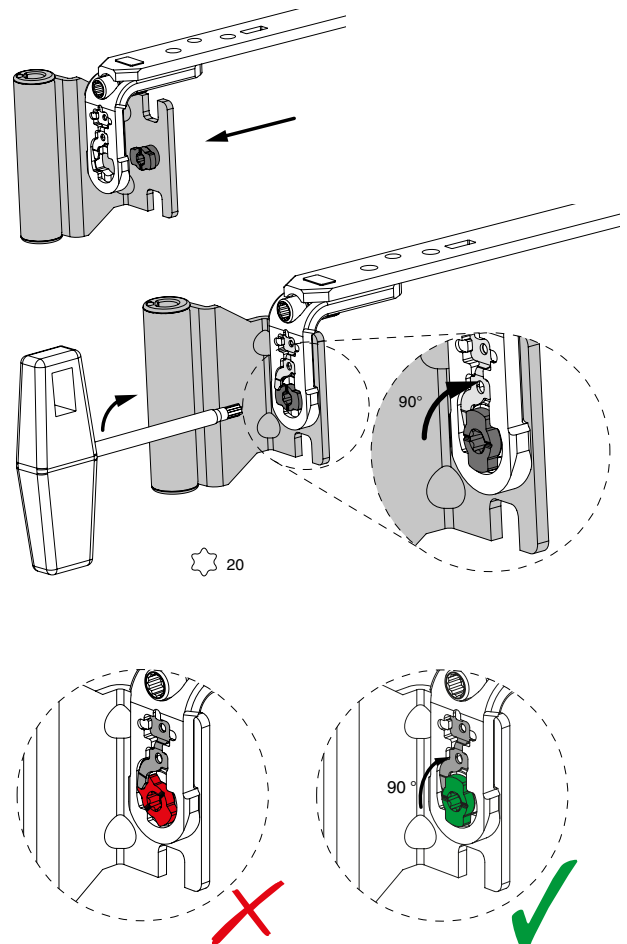


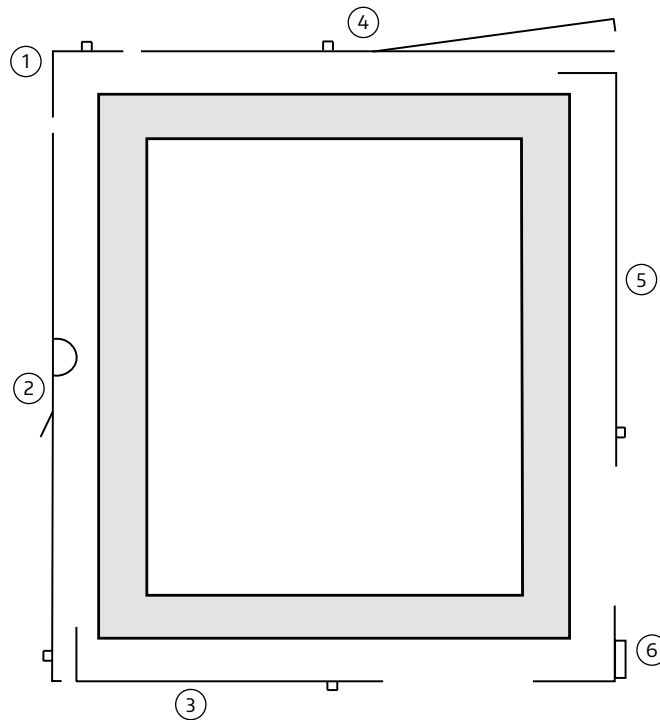
Abb. 2b - Bayonet coupling form 2022/03



DANGER!

Safety component - Processing instructions must be strictly followed! Otherwise, the window sash could fall out! Disassembling is not permitted!

Installation and cropping of the MM-KS sash fittings components



1. Install the **corner element** ①.
2. **Crop the drive-gear** ② (Fig. 1) and screw-fix together with the **corner element** ①* (On SRW over 1000 mm, firstly insert the **centre lock** ③ or the **horizontal Tilt-lock*****).
- 2.1. Mount the tilt-lock first on variable handle-height drive-gears.
3. Crop the **mounted scissor stay** ④** (Fig. 1) and screw-fix together with the **corner element*** (On SRH over 1000 mm, firstly insert the **centre lock** ⑤***). Clip on the stay support arm to the scissor stay end-bracket and turn the bayonet coupling 90° with a TORX 20 bit (Fig. 2).
4. Insert and screw-fix the **corner support** ⑥ to the rebate-leg.
5. The centre-fixings (preset centred cam-fixing) are released upon operating the fittings for the first time.
6. The sash lifter on the drive-gear must be activated by tilting it outwards.

* On **T&T** drive-gear 660 and stay guide 600, the horizontal and vertical corner elements are to be additionally screw-fixed in the groove base!

** From SRW 1300 mm or 100 kg sash weight: use an additional scissor-stay!

*** SRW and SRH of 1000 mm is a MACO recommendation, adhere to the profile manufacturers' specifications!

Fig. 1 - Cropping pattern

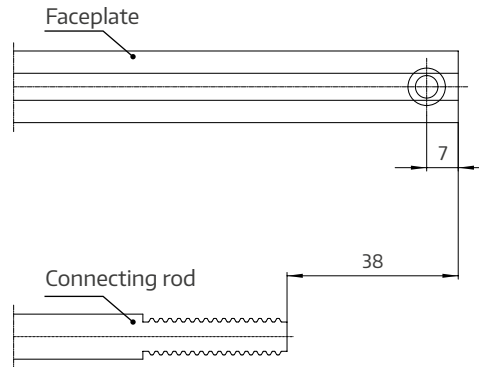
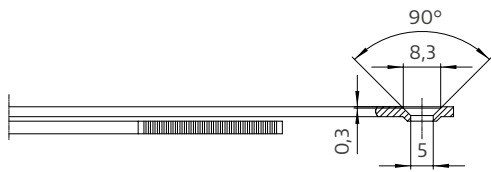


Fig. 2 - Bayonet coupling

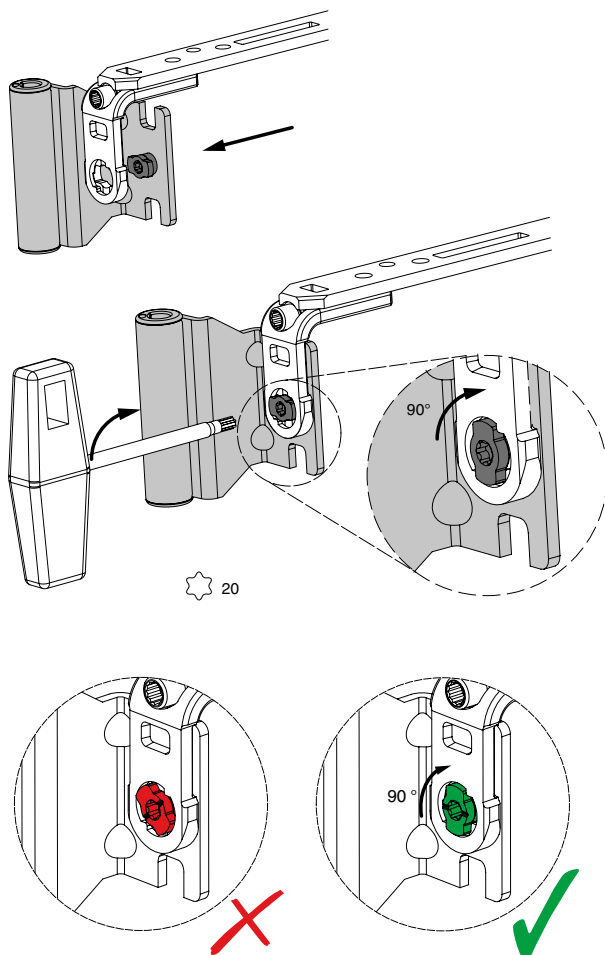
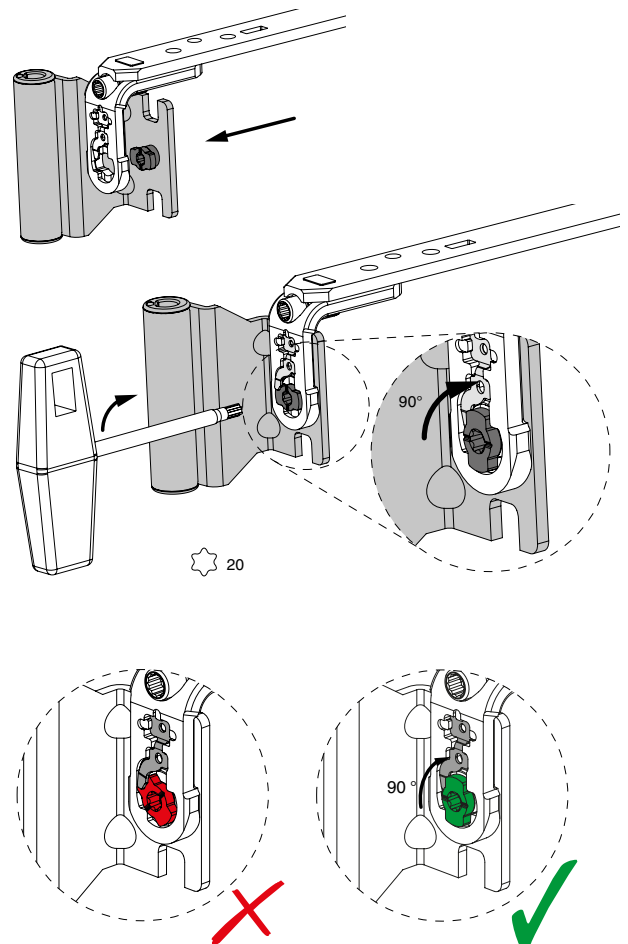


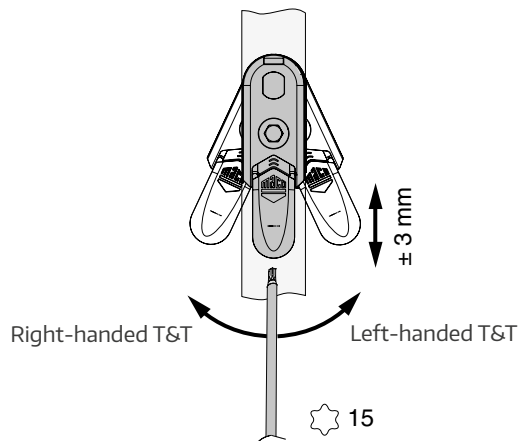
Abb. 2b - Bayonet coupling form 2022/03



DANGER!

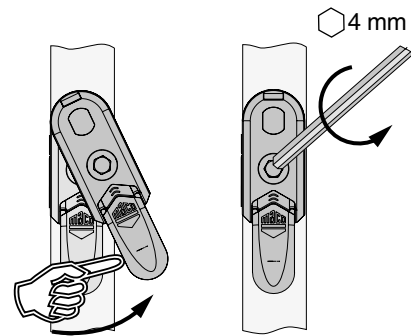
Safety component - Processing instructions must be strictly followed! Otherwise, the window sash could fall out! Disassembling is not permitted!

Activating and adjusting the sash lifter



1. Tilt the drive-gear's sash lifter in the desired direction until you hear an audible click. The sash lifter is subsequently fully operational.
2. Set to the required height by turning the adjusting screw* with a Torx 15 bit.

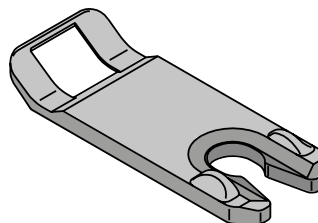
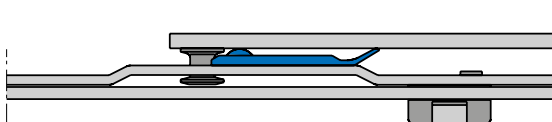
Resetting the sash lifter



1. Position the lifter into the centre.
2. Turn in the direction depicted above until it snaps into place (4 mm Allen screw-head).

Scissor-stay restrictor

A scissor-stay restrictor must be installed on sash rebate heights under 600 mm. This can already be necessary at SRH less than 800 mm, due to the several rebate-leg dimensions.



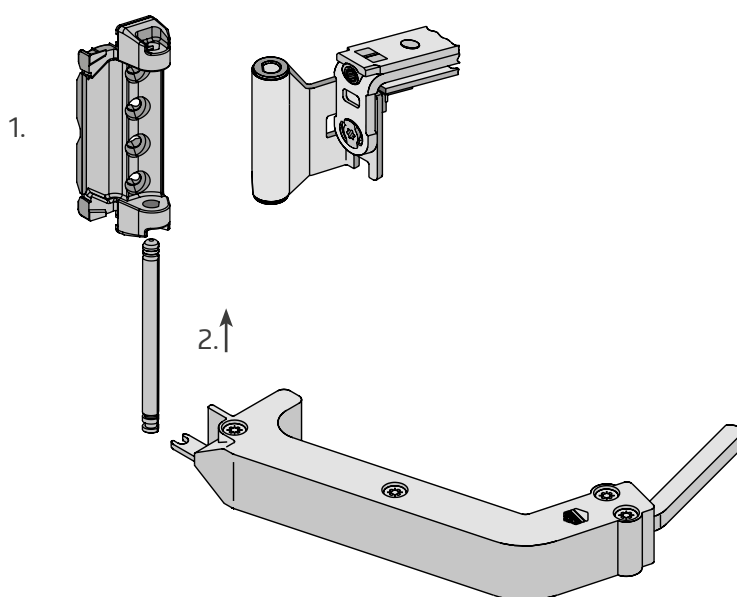
For scissor stay size 400/600/800 use 43551 (black),
For scissor stay size 1050/1300 use 43552 (white).

Hinging the sash - DT



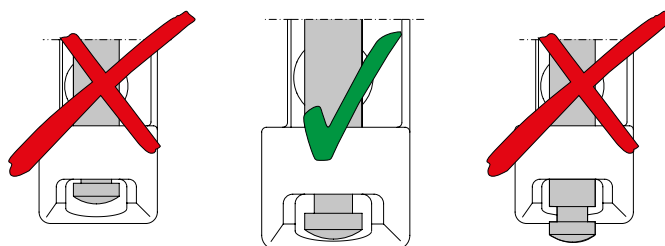
DANGER!

Safety component - Processing instructions must be strictly followed! Otherwise, the window sash could fall out! Disassembling is not permitted!



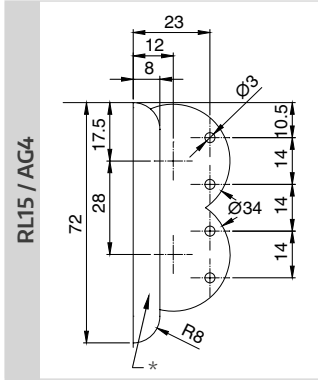
Hinge the sash into the pivot post at a 90° opening angle.

1. Position the stay support arm into the scissor stay hinge and close the sash (do not lock!).
2. Push the scissor stay-hinge pin in fully while the window is closed.
3. **Visual checking of the position of the scissor stay-hinge pin is imperative (refer to the illustration)!**

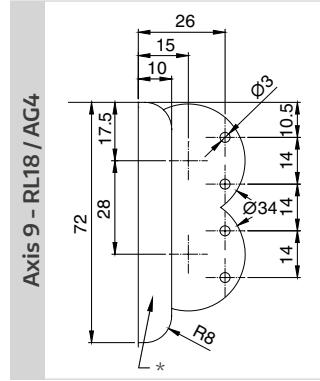


Installation of the frame fittings components

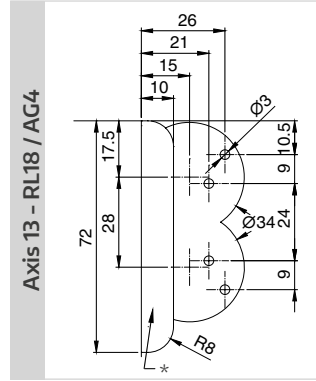
Drillhole patterns for scissor stay hinge DT



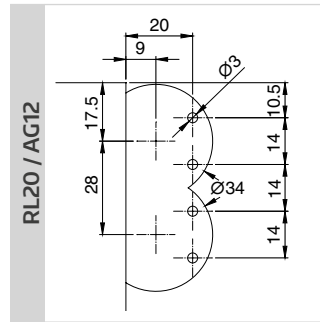
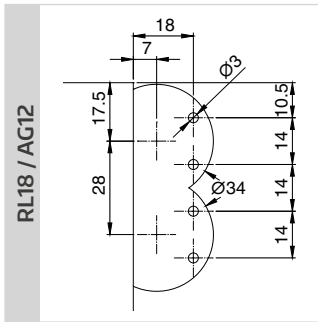
*Drilling depth 18 mm



*Drilling depth 20 mm

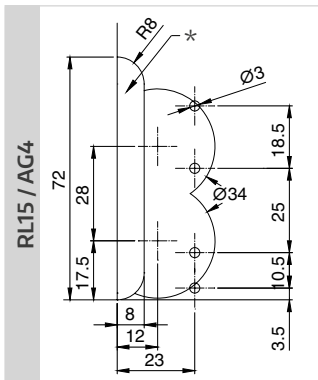


*Drilling depth 24.5 mm

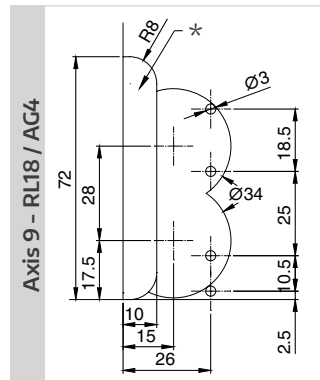


5 mm drilling depth on DT drill holes

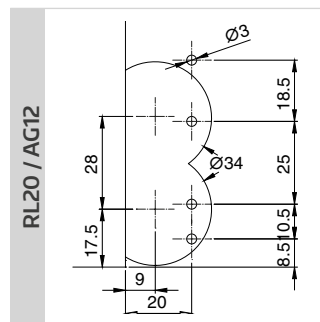
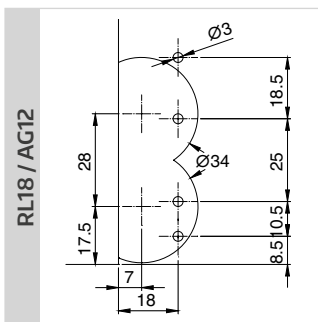
Drillhole patterns for pivot post DT



*Drilling depth 18 mm

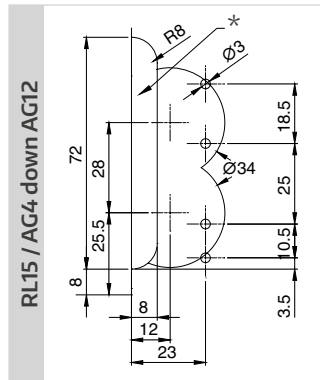


*20 mm routing depth for 9F
24.5 mm routing depth for 13F

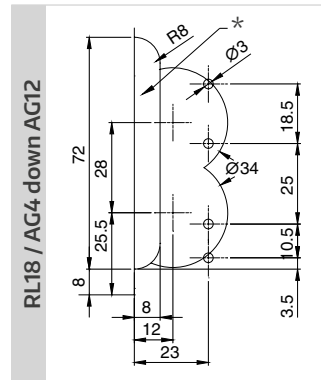


5 mm drilling depth on DT drill holes

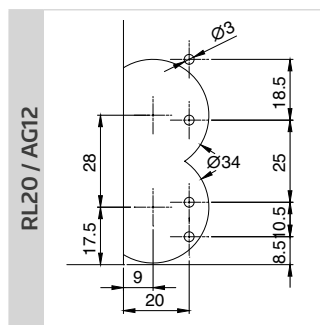
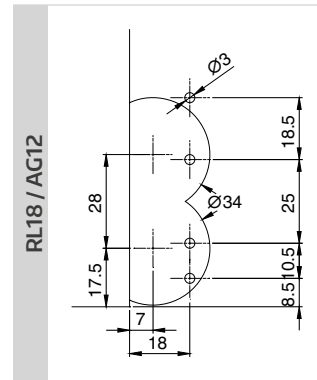
Drillhole patterns for pivot post DT - Balcony door with Transit threshold (12 Air)



*Drilling depth 18 mm

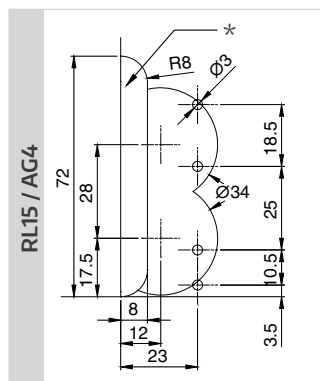


*20 mm routing depth for 9F
24.5 mm routing depth for 13F

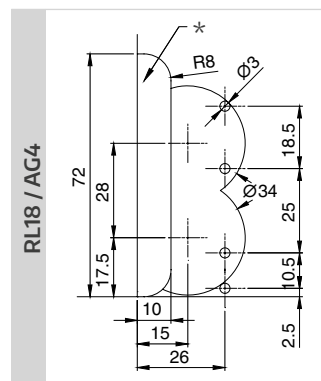


**5 mm drilling depth on
DT drill holes**

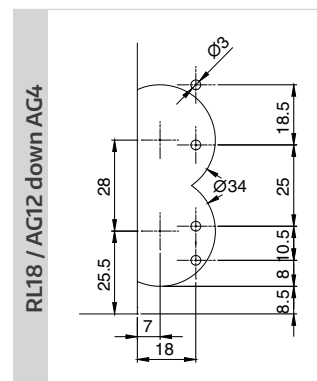
Drillhole patterns for pivot post DT - Balcony door without Transit threshold (4 Air)



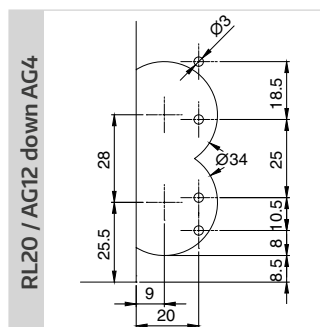
*Drilling depth 18 mm



*20 mm routing depth for 9F
24.5 mm routing depth for 13F



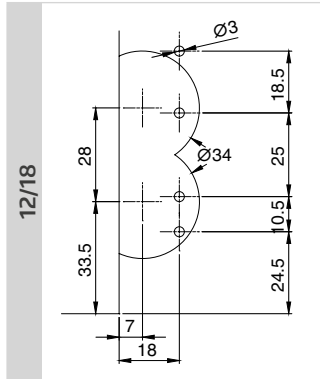
Attention: corner pivot +
corner support DT for doors



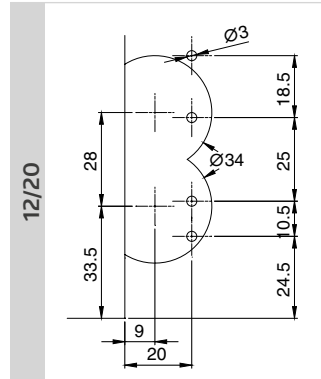
**5 mm drilling depth on
DT drill holes**

Attention: corner pivot + corner support DT for doors

Drillhole patterns for pivot post DT - Balcony door



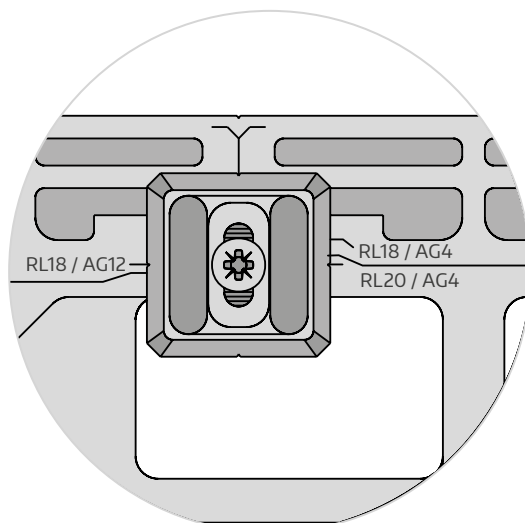
Attention: corner pivot +
corner support DT for doors



Attention: corner pivot +
corner support DT for doors

**5 mm drilling depth on
DT drill holes**

Adjusting the drilling jig for DT scissor stays and pivot posts



Routing-jig order numbers DT scissor stays and pivot posts:

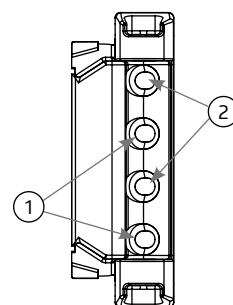
N°	System	Router	Guide-ring
20890	AG4	Ø 34	Ø 40
206751	RL15 / AG4 / AX9	Ø 16	Ø 27
101551	RL15 / AG4 / AX9	Ø 16	Ø 27
206751	RL18 / AG4 / AX9	Ø 16	Ø 27
101550	RL18 / AG4 / AX9	Ø 16	Ø 27
206751	RL18 / AG4 / AX13	Ø 16	Ø 27
102890	RL18 / AG4 / AX13	Ø 16	Ø 27

DT pivot post and scissor stay hinge installation:

The drilling holes for the DT dual-drill hole casings are always to be carried out using suitable drilling equipment with two Ø 34 mm drill bits. Only use the routing jig – as stated in the table – for special manufacturing purposes.

1. Adjust the routing-jig to the rebate-leg at hand (refer to the drawing above).
2. Position the jig in the corner and clamp tightly using the clamp jaws.

DT hinge screw-fixing from 100 kg:



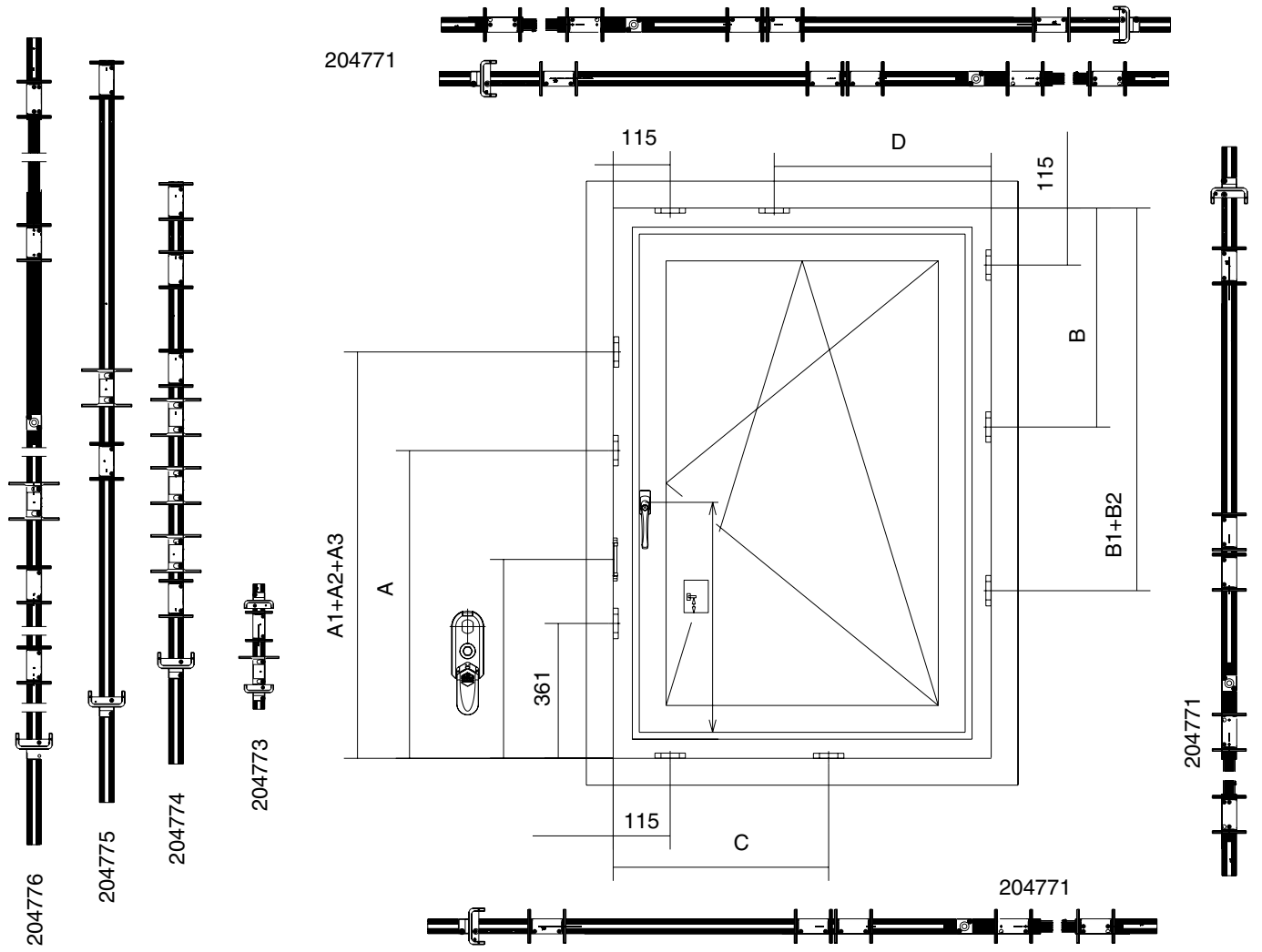
- ① Straight
- ② Angled

Always screw-fix the straight screws first!



Drill and route for both the pivot post and scissor stay hinge with the same jig settings.

Striker installation MM and MM-KS





Installation

Please note:

Install the strikers before screw-fixing the pivot post and scissor stay hinge!

1. Drive-gear jig:

Extend it and using the stops, position it at the top and bottom. Clamp the sliding rod, position and then screw on the strikers and sash lifter (note the drive-gear sizes marked on the jig).

2. Centre lock jig:

Hinge-side centre lock:

Position the jig on the top hinge-side, insert the striker in the striker holder for centre lock and then screw on (refer to the illustration marked on the jig).

Bottom horizontal centre lock:

Position the jig on the bottom drive-gear side, insert the striker in the striker holder for centre lock and then screw on (refer to the illustration marked on the jig).

Scissor stay:

Position the jig on the top hinge-side, insert the striker in the striker holder for the scissor stay and then screw on (refer to the illustration marked on the jig).

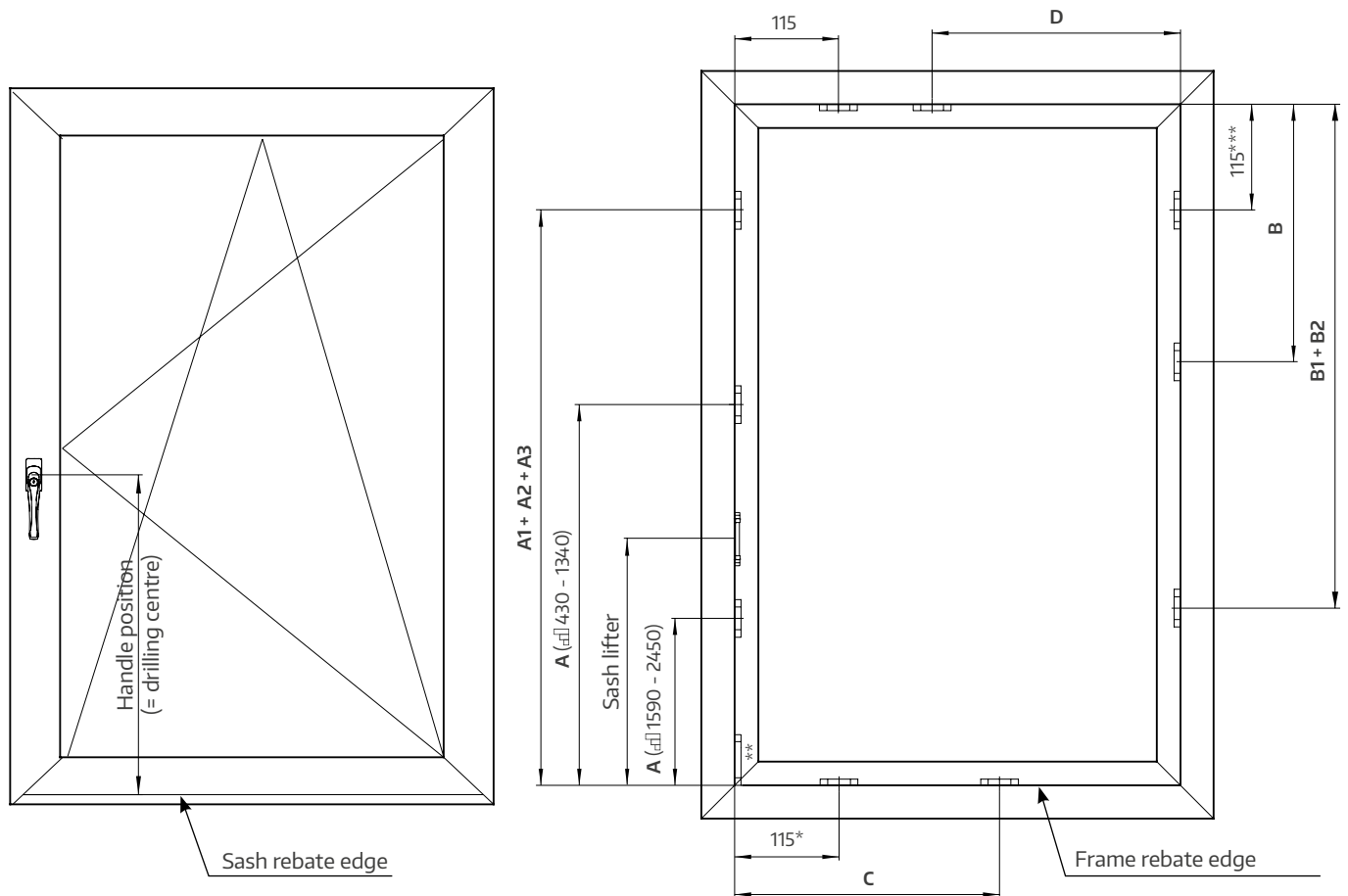
No	Jigs for TU-ON/T&T fixed handle height drive-gears
204773	SRH 431 - 660
204774	SRH 661 - 1340
204775	SRH 1341 - 1700
204776	SRH 1701 - 2450

No	Jigs for TU-ON/T&T variable/centred handle-height drive-gears
206049	Sz. 800 / Sz. 1250 / Sz. 1750
206067	Sz. 2250

No	Jigs for centre locks, scissor stays and corner elements
204771	SRH 200 - 2450 / SRW 195 - 1500

Striker drilling locations for 12 mm air gap

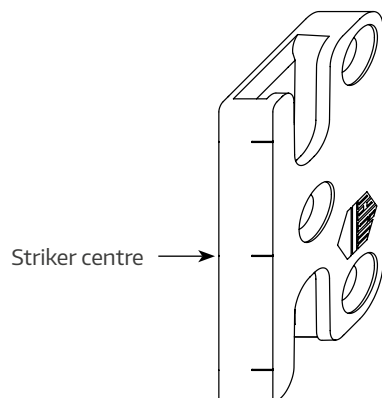
All dimensions refer to the **frame rebate dimensions**:



* Only when using horizontal MM corner element and horizontal tilt-lock

** Only when using drive-gear with tilt-rocker

*** When using vertical MM corner element



Please note:

The striker drilling location dimensions refer to the centre of the striker.

Striker positioning, sash lifters for fixed handle-height drive-gears with 12 mm air gap

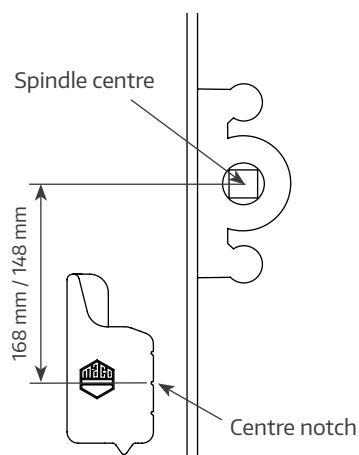
					A	A1	A2	A3
430	125	360 - 430			-	-	-	-
660	190	431 - 660	34		-	-	-	-
840	300	661 - 840	164	441	-	-	-	-
1090	400	841 - 1090	264	586	-	-	-	-
1340	500	1091 - 1340	364	686	-	-	-	-
1590	500	1341 - 1590	364	261*	921	-	-	-
1590	600	1341 - 1590	464	361	921	-	-	-
1700	500	1591 - 1700	564	261*	921**/1021*	-	-	-
1700	700	1591 - 1700	564	361	1021	-	-	-
1950	1050	1701 - 1950	914	361	796	1466	-	-
2200	1050	1951 - 2200	914	361	796	1466	-	-
2450	1050	2201 - 2450	914	361	796	1466	1966	-

Stay guide size	SRW	D
400	315 - 400	-
600	401 - 600	-
800	601 - 800	-
800 i.S.	601 - 800	403
1050	801 - 1050	506
1300	1051 - 1300	565

* only DK drive gear without tilt lock bolt (MM)
 ** only DK drive gear with tilt lock bolt (MM-KS)

Centre lock size	SRW/SRH	C	B	B1	B2
140	-	-	-	-	-
235	-	-	-	-	-
1280	801 - 1280	565	565	-	-
1500	1281 - 1500	800	800	-	-
2200	1701 - 2200	-	800	1506	-
2450	2201 - 2450	-	800	1506	1977

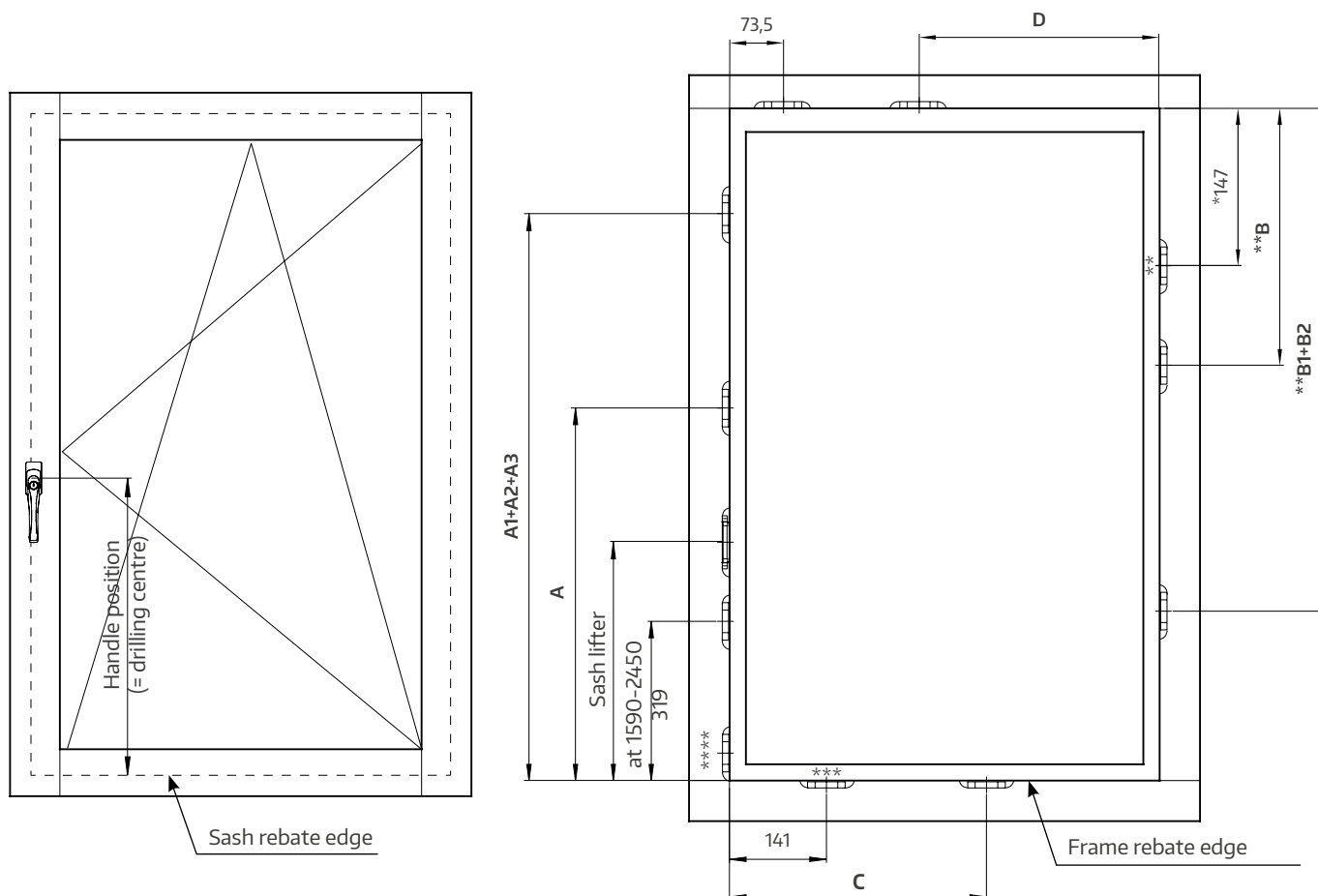
Sash lifter positioning for fixed and variable handle-height drive-gears



Spindle centre to sash lifter centre	Drive-gear size	SRH
-	430	360 - 430
168	660	431 - 660
148	840	661 - 840
148	1090	841 - 1090
148	1340	1091 - 1340
148	1590	1341 - 1590
148	1700	1591 - 1700
148	1950	1701 - 1950
148	2200	1951 - 2200
148	2450	2201 - 2450

Striker routing positions for 4mm air gap

All dimensions refer to the **frame rebate dimensions**:

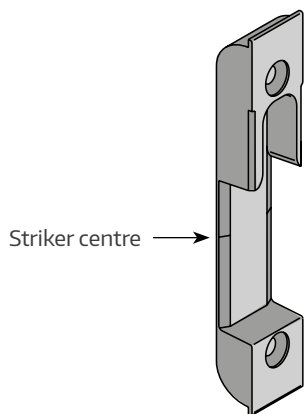


* Only when using corner element 222215

** Striker position in accordance with the table (B) + 67 mm when using corner element 222215

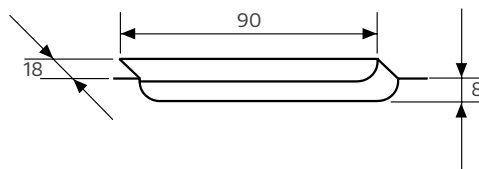
*** Only when using horizontal MM corner element and horizontal tilt-lock

**** Only when using drive-gear with tilt-rocker



Please note:

The striker drilling location dimensions refer to the centre of the striker. The striker length is 90 mm.



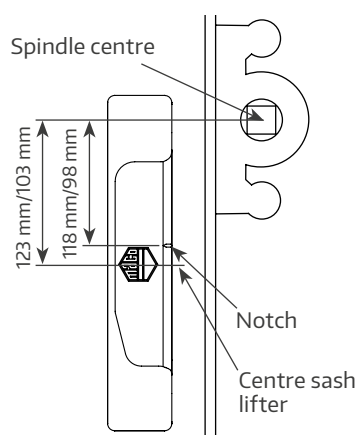
Striker positioning, sash lifters for fixed handle-height drive-gears with 4 mm air gap

				A	A1	A2	A3
430	125	360 - 430		-	-	-	-
660	190	431 - 660	71	-	-	-	-
840	300	661 - 840	201	399	-	-	-
1090	400	841 - 1090	301	544	-	-	-
1340	500	1091 - 1340	401	644	-	-	-
1590	600	1341 - 1590	501	-	879	-	-
1700	700	1591 - 1700	601	-	979	-	-
1950	1050	1701 - 1950	951	-	754	1424	-
2200	1050	1951 - 2200	951	-	754	1424	-
2450	1050	2201 - 2450	951	-	754	1424	1924

Stay guide size	SRW	D
400	315 - 400	-
600	401 - 600	-
800	601 - 800	-
800 i.S.	601 - 800	395
1050	801 - 1050	498
1300	1051 - 1300	557

Centre lock size	SRW/SRH	C	B	B1	B2
140	-	-	-	-	-
235	-	-	-	-	-
1280	801 - 1280	590	530	-	-
1500	1281 - 1500	825	765	-	-
2200	1701 - 2200	-	765	1470	-
2450	2201 - 2450	-	765	1470	1941

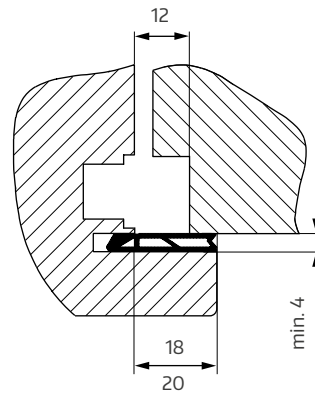
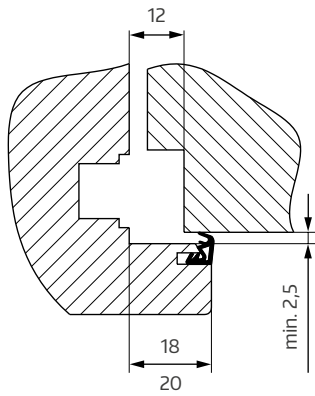
Sash lifter positioning for fixed and variable handle-height drive-gears with 4 mm air gap



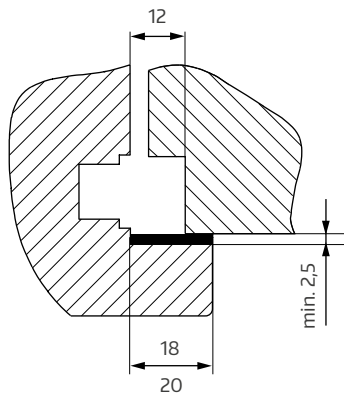
Spindle centre to centre notch	Spindle centre to centre sash lifter	Drive-gear size	SRH
-	-	430	360 - 430
118	123	660	431 - 660
98	103	840	661 - 840
98	103	1090	841 - 1090
98	103	1340	1091 - 1340
98	103	1590	1341 - 1590
98	103	1700	1591 - 1700
98	103	1950	1701 - 1950
98	103	2200	1951 - 2200
98	103	2450	2201 - 2450

AS window designs

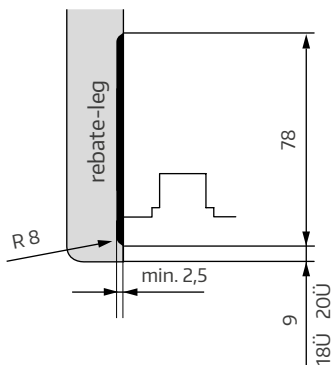
Windows with AS rebate leg gasket



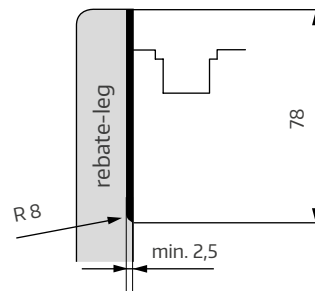
Windows without AS rebate leg gasket



Corner support routing on the sash

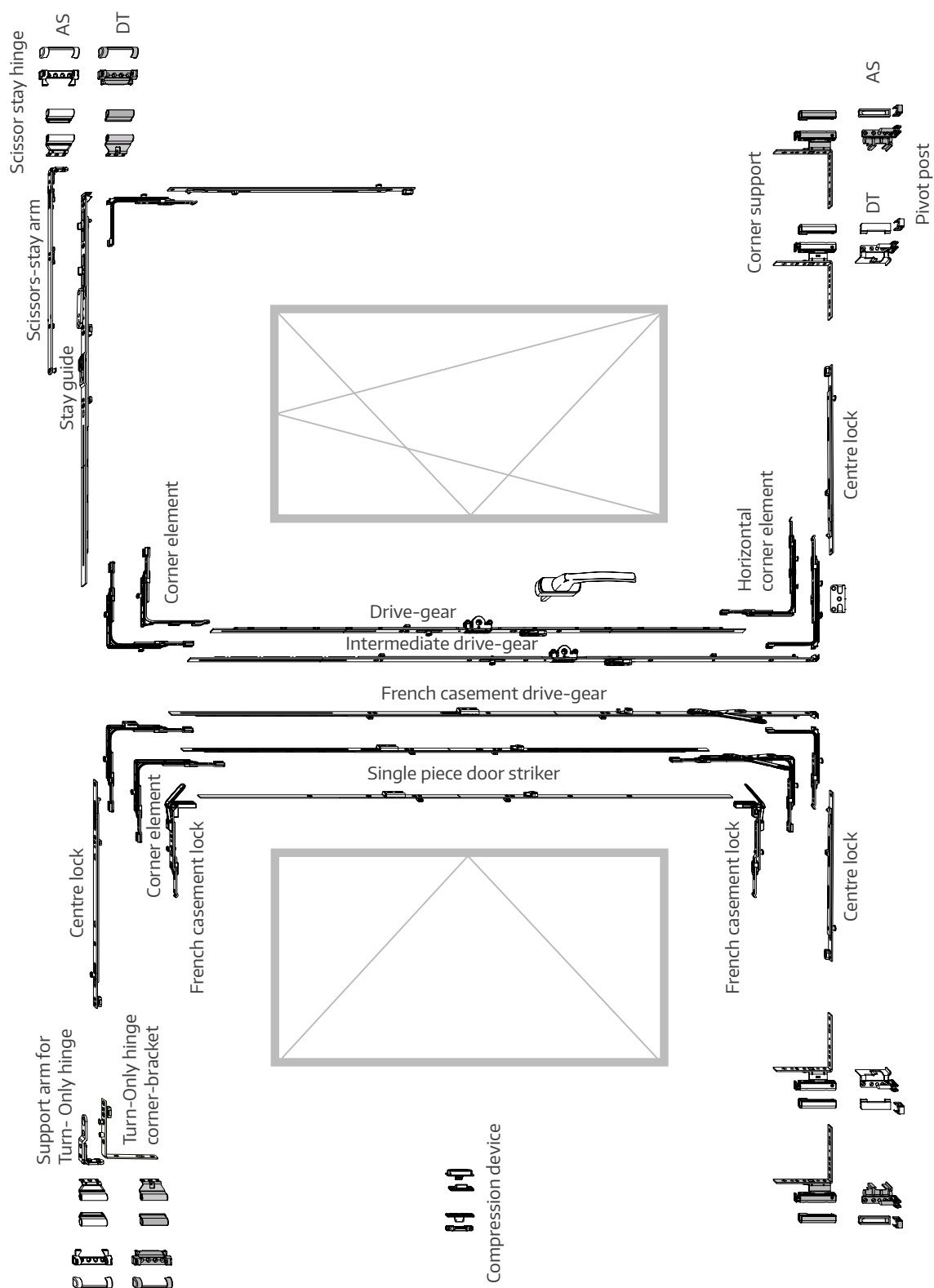


Stay support arm routing on the rebate-leg



Tilt&Turn fittings for 2-sashed windows

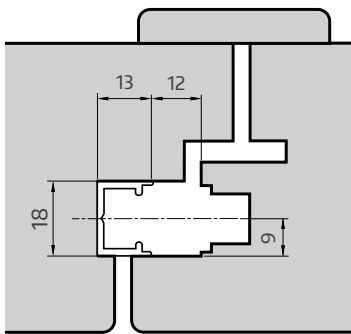
Fittings combination MM



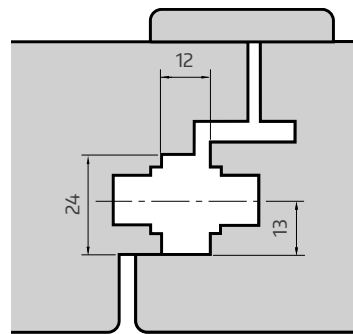
Installation of 2-sashed windows fittings components MM

French casement drive-gear with mounted strikers

Aluminium channel

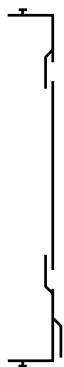


Opposing fittings groove



Installation when using fixed handle-height drive-gears:

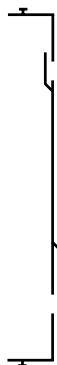
1. Insert the corner element (use a centre lock over SRW 1000 mm)*.
2. Insert the (vertical) corner element (use a centre lock over SRW 1000 mm)*.
3. Crop and screw-fix the French casement drive-gear with the reverse-action lever closed.



Installation when using variable handle- height drive-gears:

SRH 841 - 1250

1. Install the corner element (use a centre lock over SRW 1000 mm)*.
2. Install the corner element for the lever-operated espagnolette on the bottom (use a centre lock over SRW 1000 mm)*.
3. Crop the centre part, insert (noting that the notch is opposite the handle centre) and screw-fix.



SRH 1251 - 1750

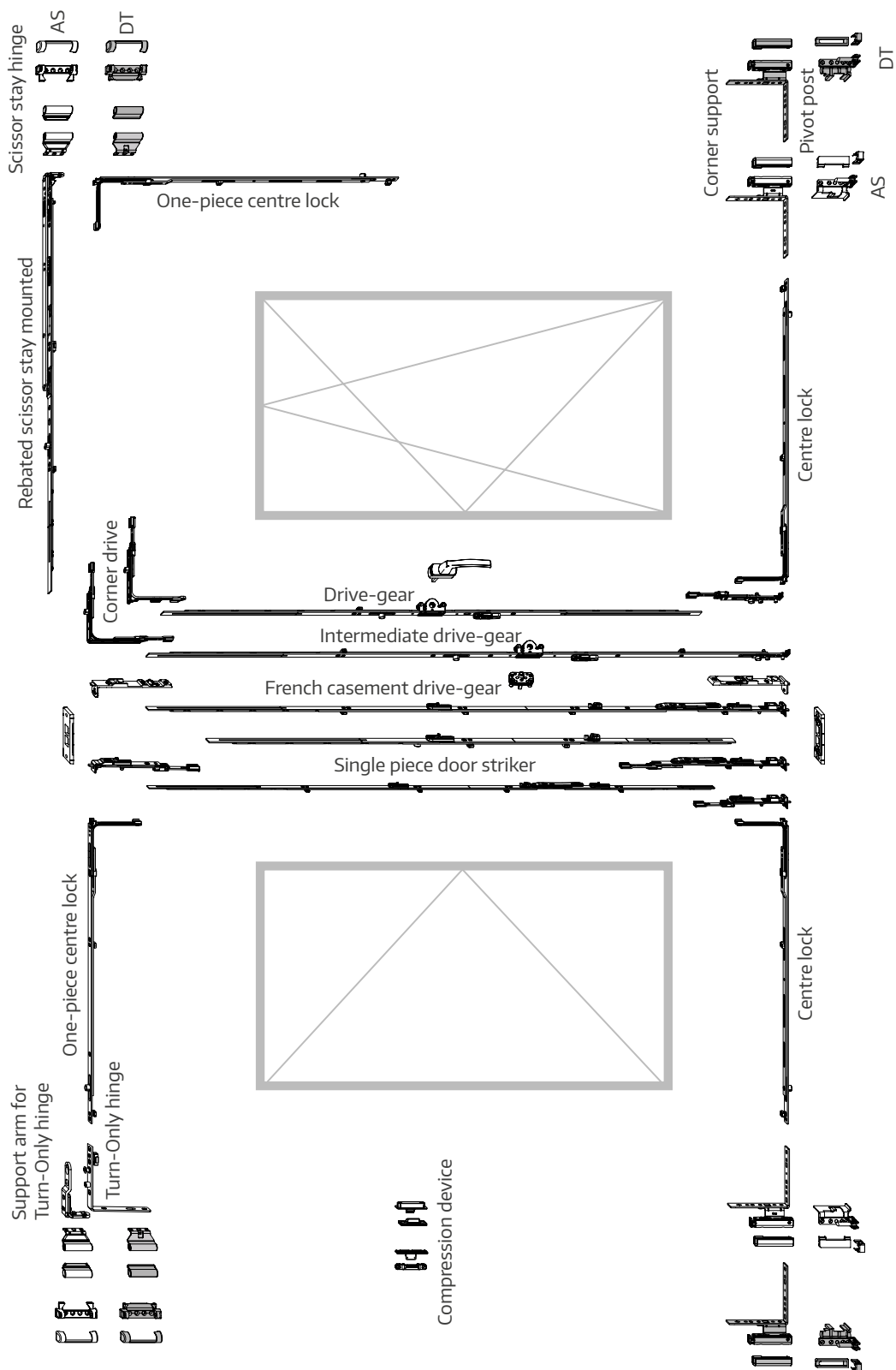
SRH 1751 - 2250

1. Install the top and bottom corner element (use a centre lock over SRW 1000 mm)*.
2. Crop the centre part, insert (noting that the notch is opposite the handle centre) and screw-fix.

* SRW and SRH of 1000 mm is a MACO recommendation, adhere to the profile manufacturers' specifications!

Tilt&Turn fittings for 2-sashed windows

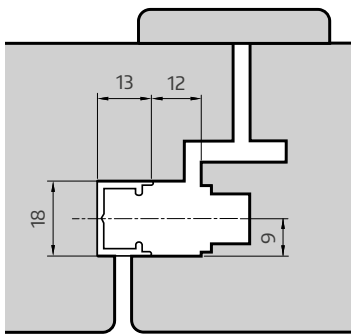
Fittings combination MM-KS



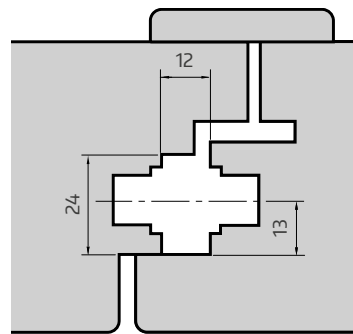
Installation of 2-sashed windows fittings components MM-KS

French casement drive-gear with mounted strikers

Aluminium channel



Opposing fittings groove



Installation when using fixed handle-height drive-gears:

1. Insert and screw-fix the top end piece (couple with centre lock if SRW is over 1000 mm)*.
2. Crop the French casement drive-gear with the reverse-action lever open – the same length as the fixed handle-height T&T drive-gear – and screw-fix (use a centre lock over SRW 1000 mm)*.



SRH 841 - 1250

1. Insert the top end piece (couple with centre lock if SRW is over 1000 mm)*.
2. Insert the bottom end piece and open the reverse-action lever (couple with centre lock if SRW is over 1000 mm)*.
3. Crop the centre part, insert (noting that the notch is opposite the handle centre) and screw-fix.



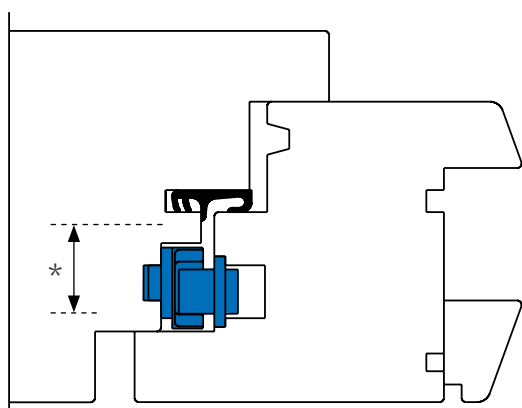
SRH 1251 - 1750

SRH 1751 - 2250

1. Insert the top and bottom end piece (couple with centre lock if SRW is over 1000 mm)*.
2. Crop the centre part with the reverse-action lever open, insert (noting that the notch is opposite the handle centre) and screw-fix.

* SRW and SRH of 1000 mm is a MACO recommendation, adhere to the profile manufacturers' specifications!

French casement drive-gear Euro-groove



* min. 19 mm on a 7 mm fittings axis

Installation when using fixed handle-height drive-gears:

1. Insert the top end piece.
- 1.2. When using variable handle-height drive-gears, insert the bottom end piece.
2. Crop the French casement drive-gear with the reverse- action lever closed and screw-fix.

Compression device installation

Screw-fixed compression device

1. Press the sash lightly while the window is closed.
2. Position the compression device and screw-fix while pressed.
3. The centre-fixing (preset centred cam-fixing) is undone when the sash is opened.

Compression device to be drilled in

1. Position the compression device on the sash with jig 10347. Attach and screw-fix to the rebate-leg. Use a eurogroove spacer on the fittings groove.
2. Predrill for the compression device frame component with jig 10347 on a 12 mm air-gap (drill Ø 20 mm). On a 4 mm air-gap, mark the centre of the compression device, route with jig 20926 and predrill with jig 10347 (drill Ø 20 mm).

Universal compression device

Position the sash and frame component with the jig (50947).

Please note: The sash must have a fittings groove!

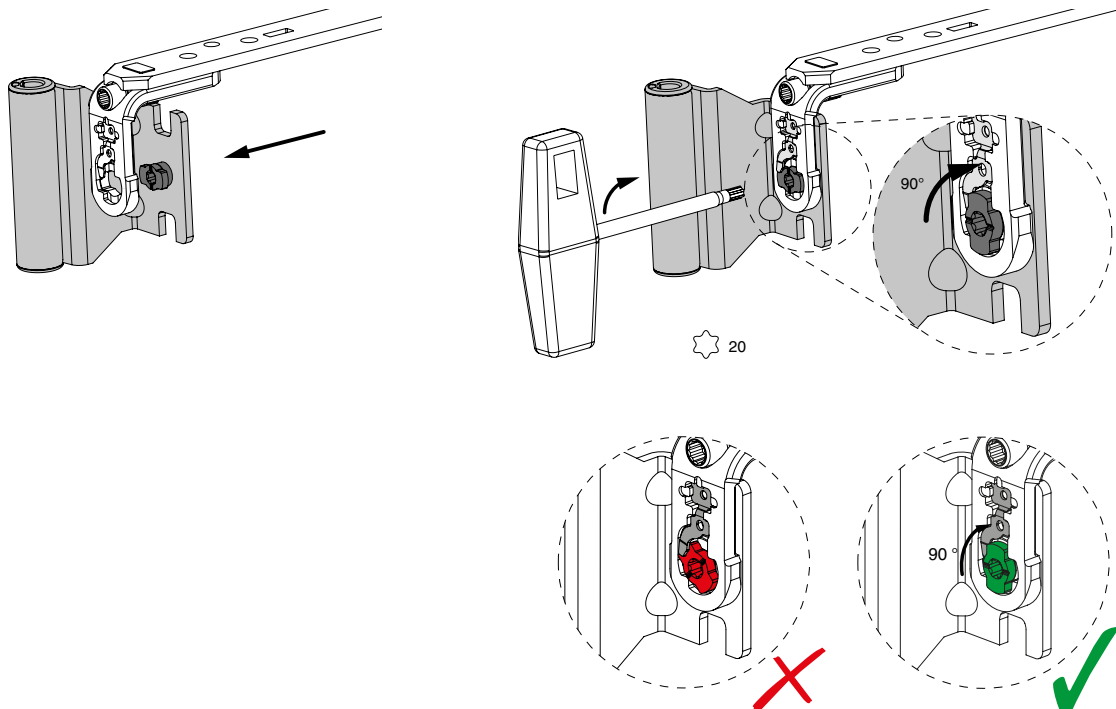
Installation of the French window sash fittings with single piece door striker

1. Install the top and bottom horizontal French window sash fittings.
2. Crop and screw-fix the single piece door striker (only on MM).

Turn-Only hinge, stay support arm and scissor stay hinge bracket installation

1. Insert the Turn-Only hinge corner-bracket in the fittings groove and screw-fix.
2. Clip in the support arm for the Turn-Only hinge.
3. Clip on the stay support arm to the scissor stay end-bracket and turn the bayonet coupling 90° with a TORX 20 bit (Fig. 1).
- 3.1. Attach the scissor stay hinge bracket in the correct position and screw on until the scissor stay hinge bracket gets stuck at the notch in the end-stop.

Fig. 1



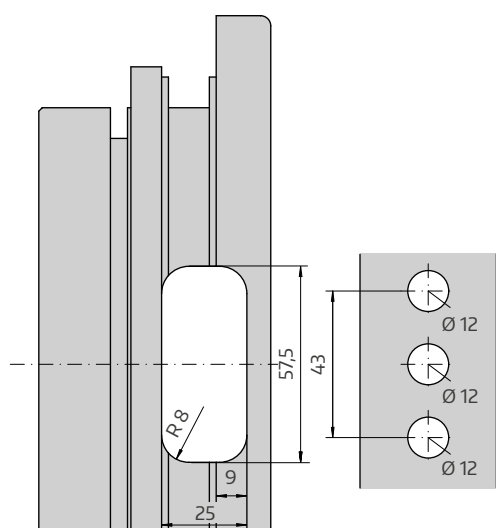
DANGER!

Safety component - Processing instructions must be strictly followed! Otherwise, the window sash could fall out! Disassembling is not permitted!

Deadbolt striker installation

Mark the deadbolt strikers while the Turn-Only sash is hinged and then mount, or use jig 21398.

Intermediate drive-gear



Spindle length calculation:

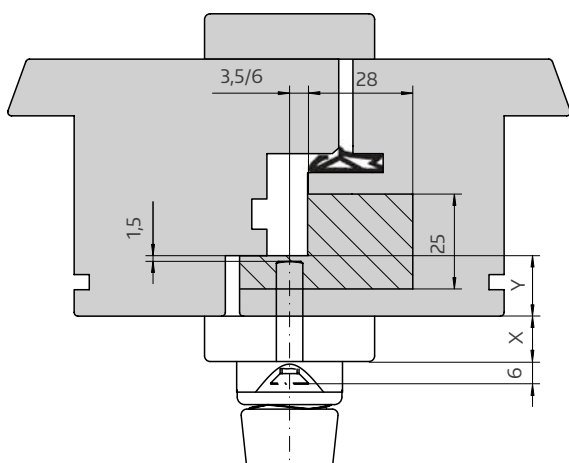
Thickness of the overlap profile X
 + Rebate-leg thickness Y
 - 1.5 mm

 = Spindle length

Screw length calculation:

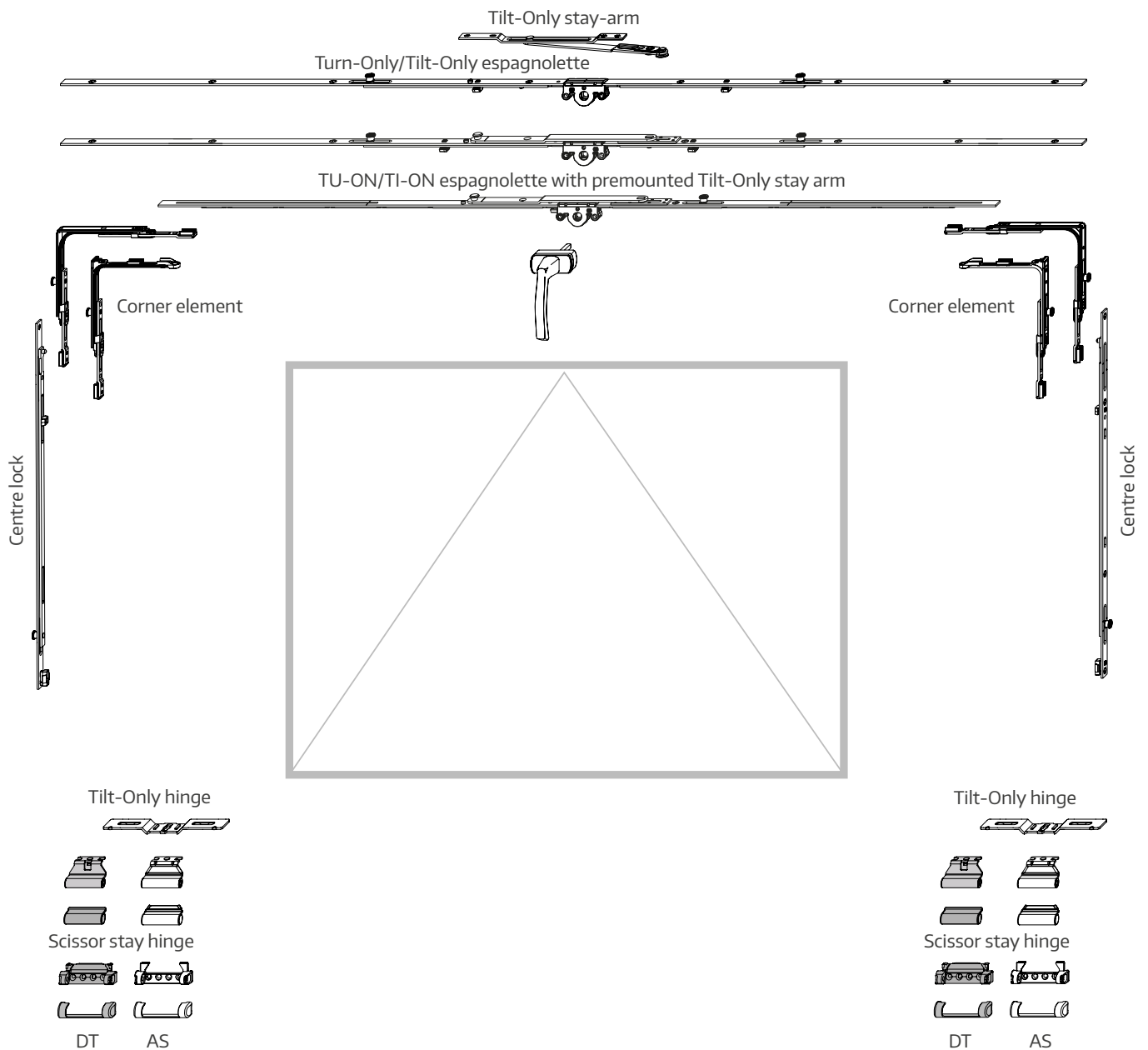
Handle 6 mm
 + Thickness of the overlap profile X
 + Rebate-leg thickness Y
 - 1.5 mm

 = Spindle length



Tilt-Only fittings

Fittings combination MM

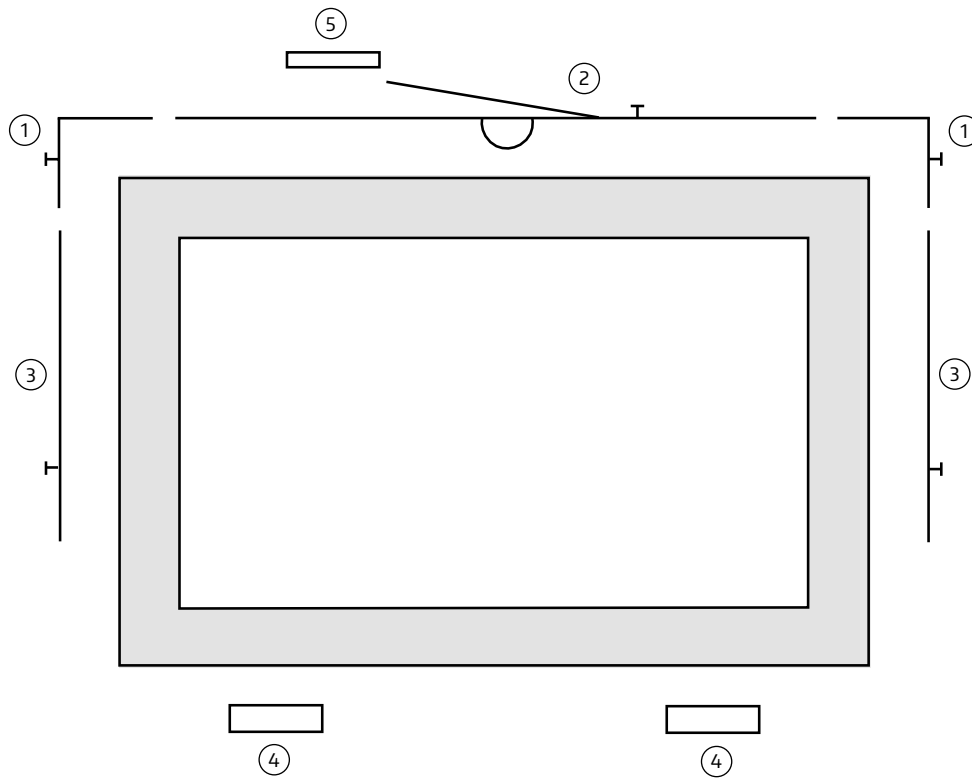


Attention:

From FFB 1200 mm, use a third tilt-only hinge!

For this use, the directive FPKF „restrictor and cleaning stays for tilt-only sashes and tilt skylights“ must be considered (www.schlossindustrie.de).

Installation and cropping of the MM sash fittings components



1. Install the **corner element** ①.
2. Crop the **TU.-ON./TI.-ON. espagnolette with Tilt-Only stay-arm** ② and screw-fix together with the **corner element** ① (use two Tilt-Only stay-arms from SRW 1200 mm).
3. Install the **centre locks** ③ (from a SRH over 1000 mm)*.
4. Install the **Tilt-Only hinges** ④ (use a third Tilt-Only hinge from a SRW over 1200 mm or 60 kg sash weight).
PLEASE NOTE: Use glazing spacer-blocks on the window pane in the vicinity of the Tilt-Only hinges.
5. Install the **Tilt-Only stay-arm housing** ⑤. Mark the Tilt-Only stay-arm's notch (Fig. 1, ①) on the frame with a pencil, line up the Tilt-Only stay-arm housing's mark with the notch and mount (Fig. 1, ②).
6. Install the restrictor and cleaning stay. (The use of this is compulsory!).

* SRW and SRH of 1000 mm is a MACO recommendation, adhere to the profile manufacturers' specifications!

Cropping pattern

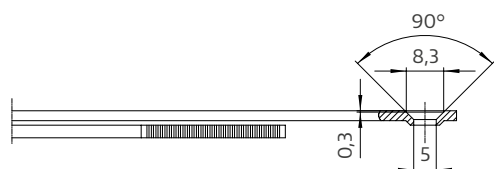


Fig. 1

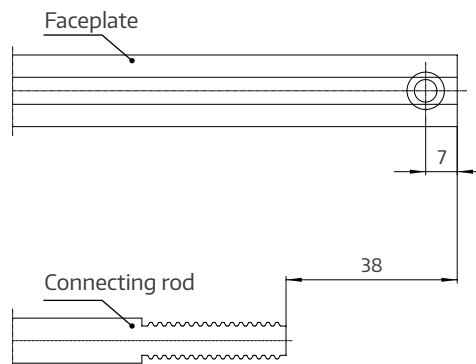
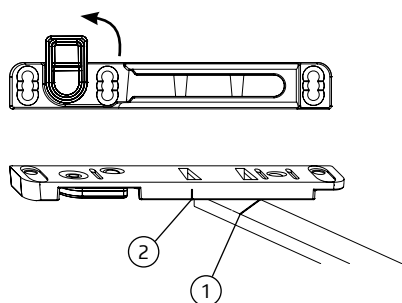
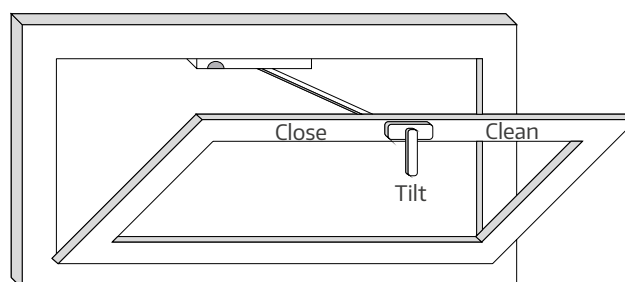


Fig. 2



Hinging the Tilt-Only stay arm

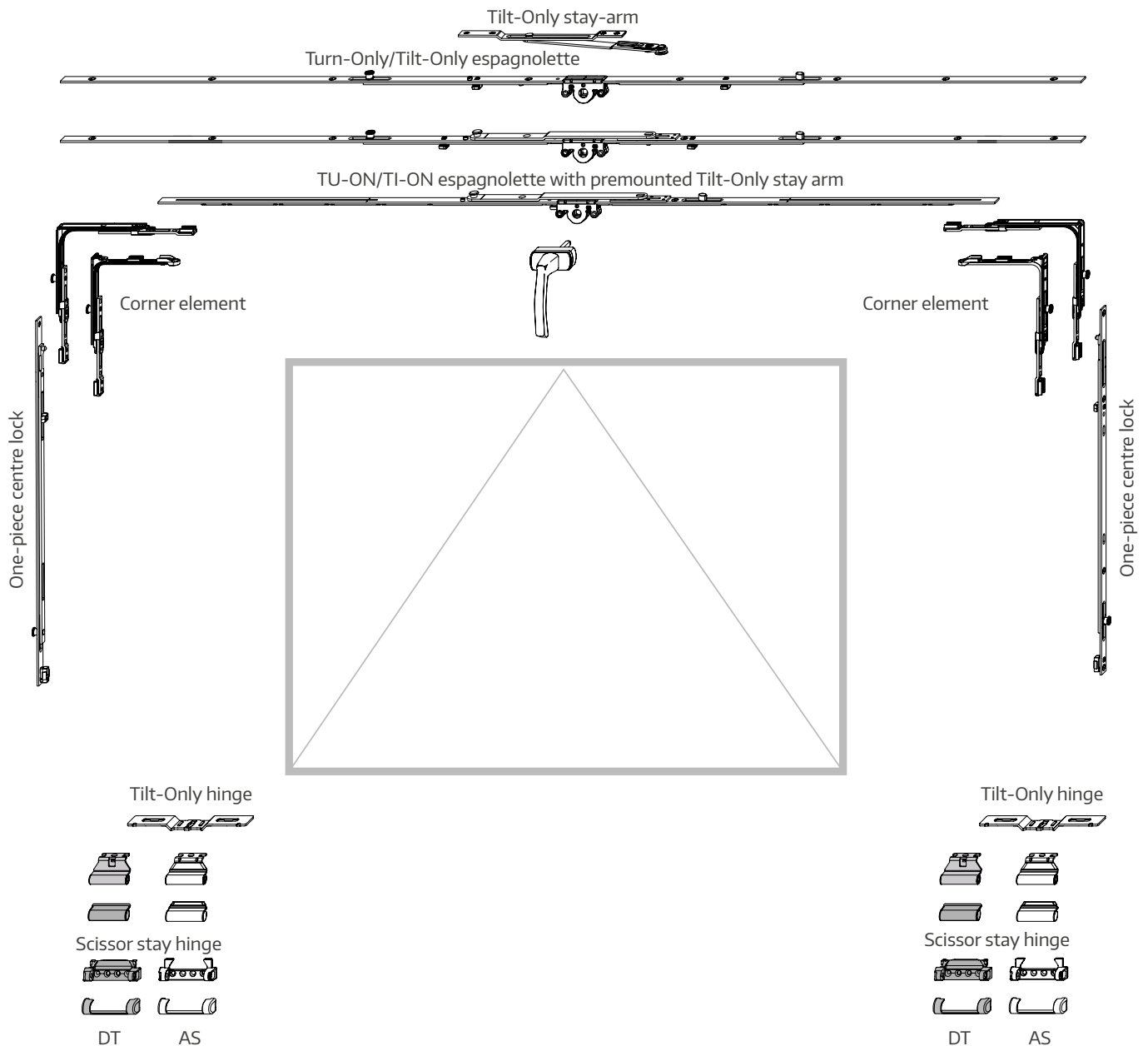
1. In order to hinge the sash, bring the window handle into the cleaning position (Fig. 2).
2. Open the safety device on the Tilt-Only stay-arm housing and hinge the scissor-stay arm (Fig. 1).
3. Bring the window handle into the tilt-mode (Fig. 2) and close the safety device again (Fig. 1)

Unhinging the Tilt-Only stay arm

1. When unhinging in the tilted position, open the safety device (Fig. 1).
2. Close the sash, bring the handle into the cleaning position and open the sash (Fig. 2).

Tilt-Only fittings

Fittings combination MM-KS



Attention:

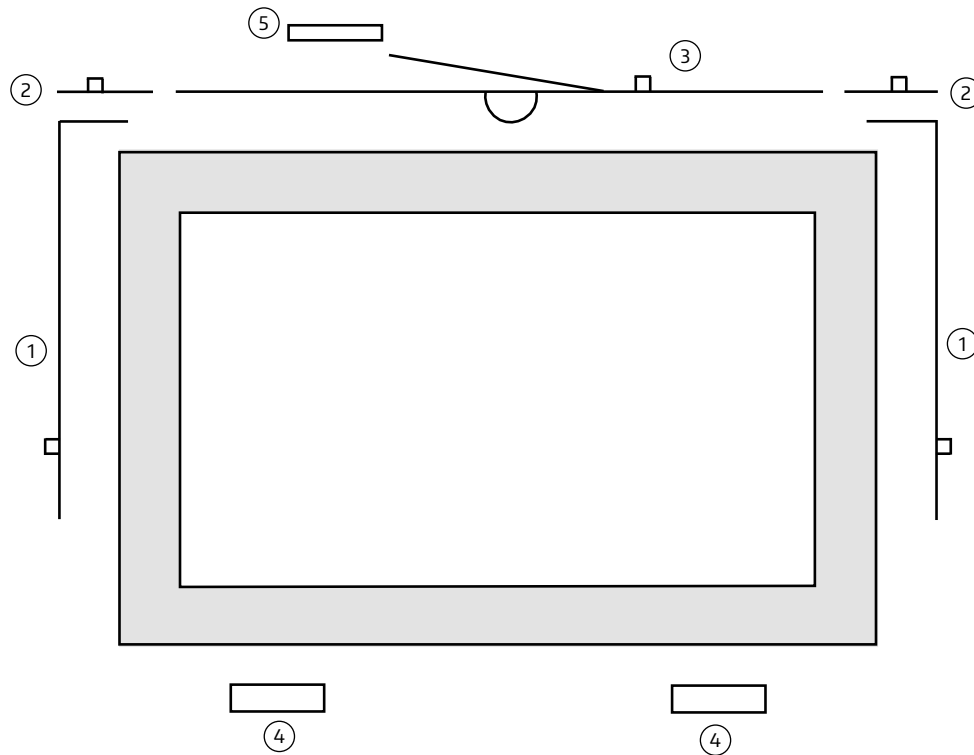
From FFB 1200 mm, use a third tilt-only hinge!

For this use, the directive FPKF „restrictor and cleaning stays for tilt-only sashes and tilt skylights“ must be considered (www.schlossindustrie.de).

Fittings combination MM-KS

	SRW	750 - 1250	1251 - 1700	1701 - 2200	2201 - 2400
SRH		1 VHH TU.-ON./TI.-ON. espag. preass. tilt-rocker 1i.S. 2 end pieces 1VZ 1 striker 2 Tilt-Only hinges 1 Tilt-Only stay-arm housing Use a third Tilt-Only hinge on timber from SRW 1200! Use a restrictor and cleaning stay!!!	1 VHH TU.-ON./TI.-ON. espag. preass. tilt-rocker 2i.S. 2 end pieces 1VZ 2 strikers 3 Tilt-Only hinges 2 Tilt-Only stay-arm housing	1 VHH TU.-ON./TI.-ON. espag. preass. tilt-rocker 2i.S. 2 end pieces 1VZ 3 strikers 3 Tilt-Only hinges 2 Tilt-Only stay-arm housing	1 VHH TU.-ON./TI.-ON. espag. preass. tilt-rocker 2i.S. 2 faceplate extensions 235 1i.S. 2 end pieces 1VZ 5 strikers 3 Tilt-Only hinges 2 Tilt-Only stay-arm housings
300 - 800	Restrictor and cleaning stay; refer to the application diagram!!!				
801 - 1200	2 one-piece centre locks 1280 1VZ 2 strikers Restrictor and cleaning stay; refer to the application diagram!!!				
<p>Attention - do not forget!!!</p> <p>On all sizes:</p> <ul style="list-style-type: none"> 1 scissor stay hinge 1 scissor stay-hinge pin 1 stay support arm 1 pivot post 1 corner support 					
<p>Max. 80 kg sash weight</p> <ul style="list-style-type: none"> A - Tilt-Only stay arm + restrictor and cleaning stay size 1 B - Tilt-Only stay arm + restrictor and cleaning stay size 2 C - 2 Tilt-Only stay arms + restrictor and cleaning stay size 1 D - 2 Tilt-Only stay arms + restrictor and cleaning stay size 2 					

Installation and cropping of the MM-KS sash fittings components



1. Install the **one-piece centre locks** ① (from a SRW over 1000 mm)*.
2. Install the **end pieces** ② (couple with the centre locks if applicable).
3. Crop the **TU.-ON./TI.-ON. espagnolette with Tilt-Only stay-arm** ③ and screw-fix together with the end pieces (use two Tilt-Only stay-arms from SRW 1200 mm).
4. Install the **Tilt-Only hinges** ④ (use a third Tilt-Only hinge from a SRW over 1200 mm or 60 kg sash weight).
PLEASE NOTE: Use glazing spacer-blocks on the window pane in the vicinity of the Tilt-Only hinges.

5. Install the **Tilt-Only stay-arm housing** ⑤. Mark the Tilt-Only stay-arm's notch (Fig. 1, ①) on the frame with a pencil, line up the Tilt-Only stay-arm housing's mark with the notch and mount (Fig. 1, ②).
6. Install the restrictor and cleaning stay. (The use of this is compulsory!).

* SRW and SRH of 1000 mm is a MACO recommendation, adhere to the profile manufacturers' specifications!

Cropping pattern

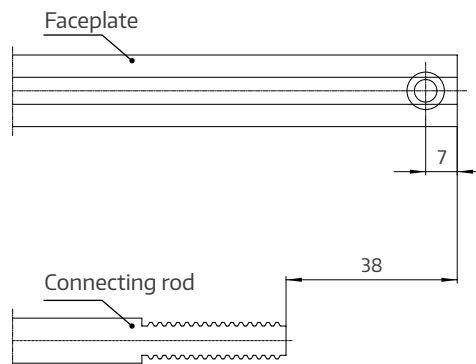


Fig. 1

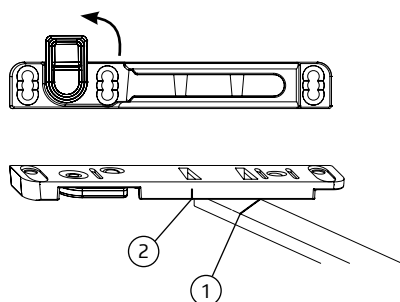
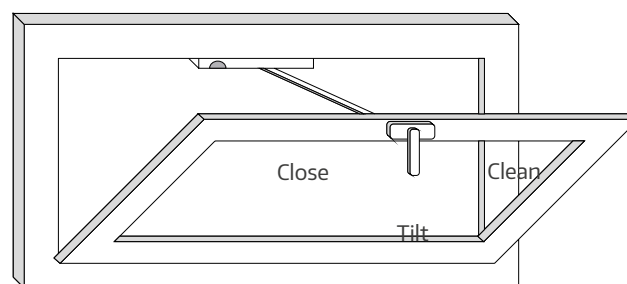


Fig. 2



Hinging the Tilt-Only stay arm

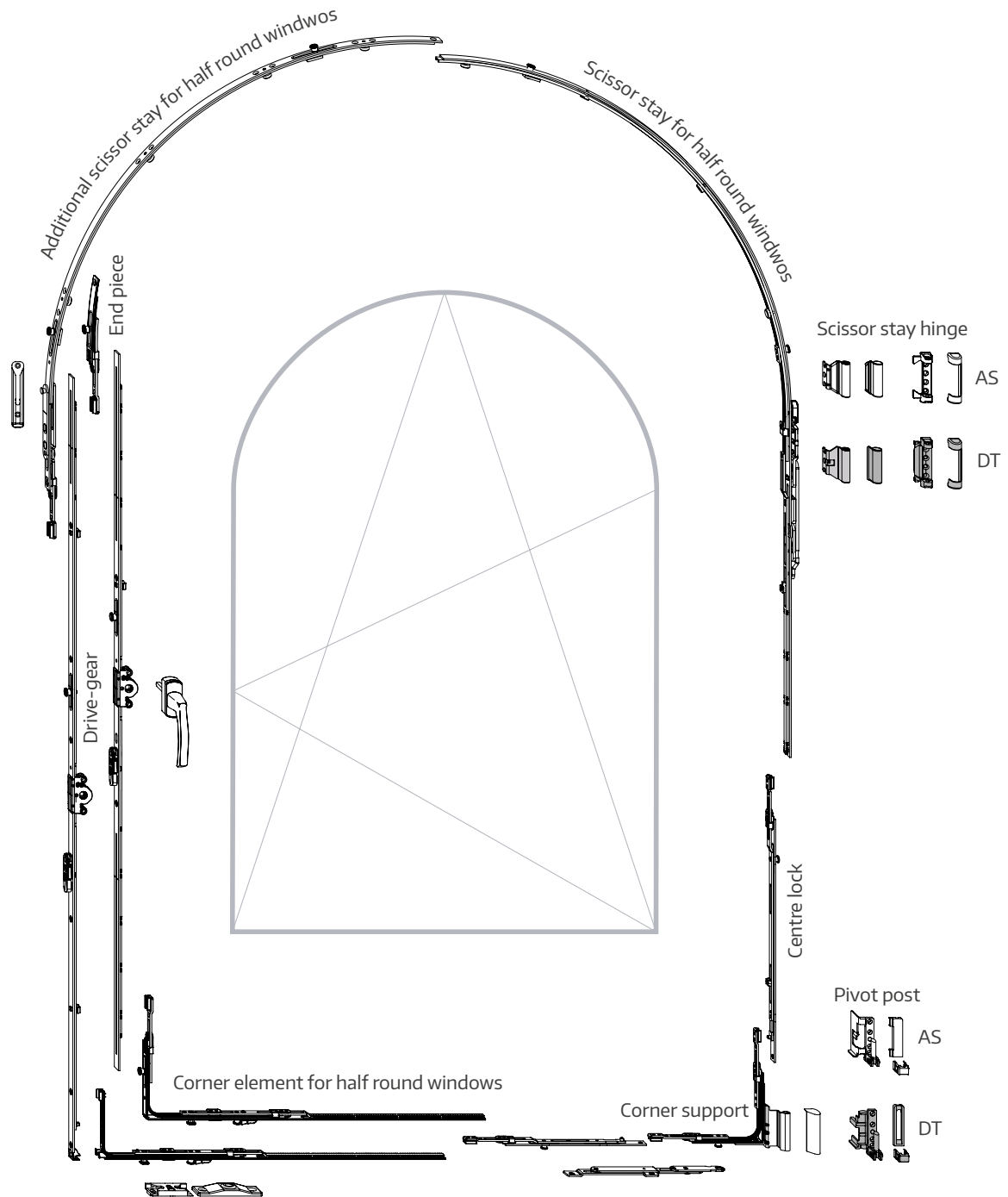
1. In order to hinge the sash, bring the window handle into the cleaning position (Fig. 2).
2. Open the safety device on the Tilt-Only stay-arm housing and hinge the scissor-stay arm (Fig. 1).
3. Bring the window handle into the tilt-mode (Fig. 2) and close the safety device again (Fig. 1)

Unhinging the Tilt-Only stay arm

1. When unhinging in the tilted position, open the safety device (Fig. 1).
2. Close the sash, bring the handle into the cleaning position and open the sash (Fig. 2).

Half round fittings

Fittings combination MM



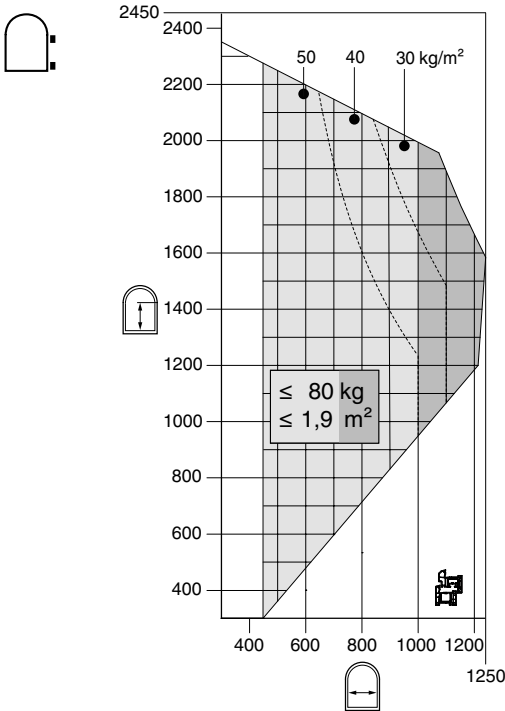
Fittings combination MM

	SRW	370 - 620	621 - 905	906 - 1140	1141 - 1250
SRH		1 half-round scissor-stay 620 1 Horizontal corner element for half round windows 1 i.S. striker 2 strikers	1 half-round scissor-stay 1250 1 Horizontal corner element for half round windows 1 i.S. striker 4 strikers 1 faceplate extension 235	1 half-round scissor-stay 1250 1 Horizontal corner element for half round windows 1 i.S. striker 4 strikers 1 centre lock 1280V Use an additional scissor-stay from SRW 1000 or 60 kg!	1 half-round scissor-stay 1250 1 Horizontal corner element for half round windows 1 i.S. striker 4 strikers 1 centre lock 1280V Use an additional scissor-stay from SRW 1000 or 60 kg!
370 - 430	1 T&T drive-gear 430 1 top end-piece 1 corner element 1 i.S				
431 - 660	1 T&T drive-gear 660 1 top end-piece 1 corner element 1 i.S. 1 striker 1 sash lifter				
661 - 840	1 T&T drive-gear 840 1 top end-piece 1 corner element 1 i.S. 2 strikers 1 sash lifter From SRH 781 use SV 235; additional ST required!				
841 - 1090	1 T&T drive-gear 1090 1 top end-piece 1 corner element 1 i.S. 1 faceplate ext. 235 3 strikers 1 sash lifter From SRH 1011; CL 1280V instead of SV 235!				
1091 - 1340	1 T&T drive-gear 1340 1 top end-piece 1 corner element 1 i.S. 1 centre lock 1280V 3 strikers 1 sash lifter From SRH 1246; CL 1500V instead of 1280V!				
1341 - 1590	1 T&T drive-gear 1590 1 top end-piece 1 corner element 1 i.S. 1 centre lock 1500V 3 strikers 1 sash lifter From SRH 1481 use SV 235; additional ST required!				
1591 - 1700	1 T&T drive-gear 1700 1 top end-piece 1 corner element 1 i.S. 1 centre lock 1500V 1 centre lock 1280V 6 strikers 1 sash lifter				
1701 - 1950	1 T&T drive-gear 1950 1 top end-piece 1 corner element 1 i.S. 1 centre lock 1500V 1 centre lock 1280V 6 strikers 1 sash lifter				
1951 - 2200	1 T&T drive-gear 2200 1 top end-piece 1 corner element 1 i.S. 1 centre lock 1500V 1 centre lock 1280V 6 strikers 1 sash lifter				

Attention - do not forget!!!

On all sizes:

- 1 scissor stay hinge
- 1 scissor stay-hinge pin
- 1 stay support arm
- 1 pivot post
- 1 corner support

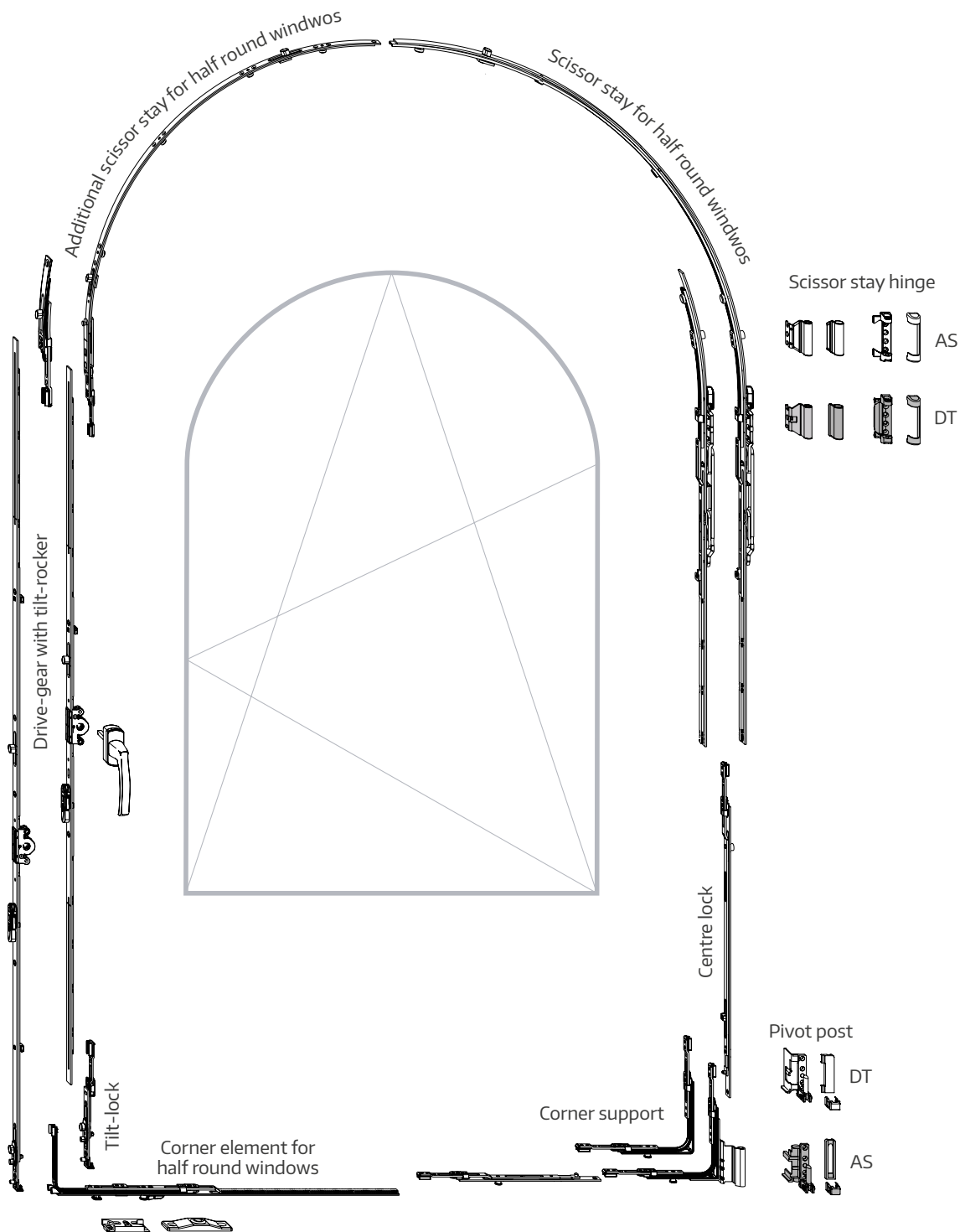


Application diagram for half round windows with up to 80 kg sash weight

The use of a sash lifter striker and run up wedge is compulsory (refer to page 51/Fig. 1)!

Half round fittings

Fittings combination MM-KS



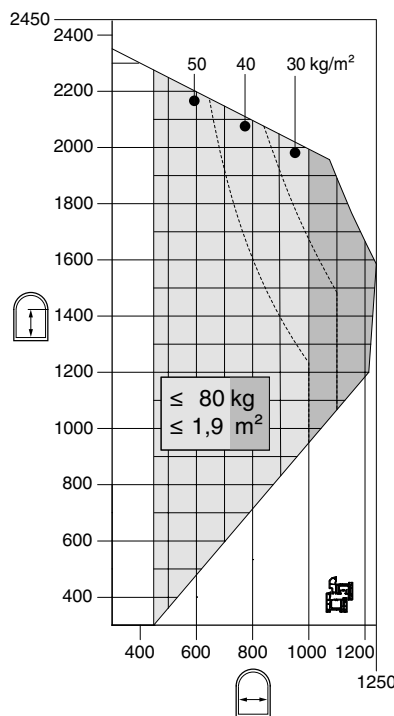
Fittings combination MM-KS

	SRW	370 – 620	621 – 905	906 – 1140	1141 – 1250
SRH		1 half-round scissor-stay 620 1i.S. 1 hor. corner element for HR 3 strikers	1 half-round scissor-stay 1250 2 i.S. 1 hor. corner element for HR 5 strikers 1 faceplate extension 235 1 i.S.	1 half-round scissor-stay 1250 2 i.S. 1 hor. corner element for HR 5 strikers 1 centre lock 1280V 1i.S. Use an additional scissor-stay from SRW 1000 or 60 kg!	1 half-round scissor-stay 1250 2 i.S. 1 hor. corner element for HR 5 strikers 1 centre lock 1500V 1i.S. Use an additional scissor-stay from SRW 1000 or 60 kg!
370 – 430	1TU-ON / T&T drive-gear 430 1 top end-piece 1 i.S. 1 corner element 1VZ 1 striker 1 tilt striker				
431 – 660	1TU-ON / T&T drive-gear 660 1 top end-piece 1 i.S. 1 corner element 1VZ 1 striker 1 tilt striker				
661 – 840	1T&T drive-gear 840 1VZ 1 top end-piece 1 i.S. 1 corner element 1VZ 2 strikers 1 sash lifter 1 tilt striker From SRH 781 use SV 235; additional ST required!				
841 – 1090	1T&T drive-gear 1090 1VZ 1 top end-piece 1 i.S. 1 corner element 1VZ 1 faceplate ext. 235 1i.S. 3 strikers 1 sash lifter 1 tilt striker From SRH 1011; CL 1280V instead of SV 235!				
1091 – 1340	1T&T drive-gear 1340 1VZ 1 top end-piece 1 i.S. 1 corner element 1VZ 1 centre lock 1280V 1i.S. 3 strikers 1 sash lifter 1 tilt locking part From SRH 1246; CL 1500V instead of 1280V!				
1341 – 1590	1T&T drive-gear 1590 2 VZ 1 top end-piece 1 i.S. 1 corner element 1VZ 1 centre lock 1500V 1i.S. 4 strikers 1 sash lifter 1 tilt locking part From SRH 1481 use SV 235; additional ST required!				
1591 – 1700	1T&T drive-gear 1700 2 VZ 1 top end-piece 1 i.S. 1 corner element 1VZ 1 centre lock 1500V 1i.S. 1 centre lock 1280V 1i.S. 5 strikers 1 sash lifter 1 tilt locking part				
1701 – 1950	1T&T drive-gear 1950 3 VZ 1 top end-piece 1 i.S. 1 corner element 1VZ 1 centre lock 1500V 1i.S. 1 centre lock 1280V 1i.S. 6 strikers 1 sash lifter 1 tilt locking part				
1951 – 2200	1T&T drive-gear 2200 3 VZ 1 top end-piece 1 i.S. 1 corner element 1VZ 1 centre lock 1500V 1i.S. 1 centre lock 1280V 1i.S. 6 strikers 1 sash lifter 1 tilt locking part				

Attention - do not forget!!!

On all sizes:

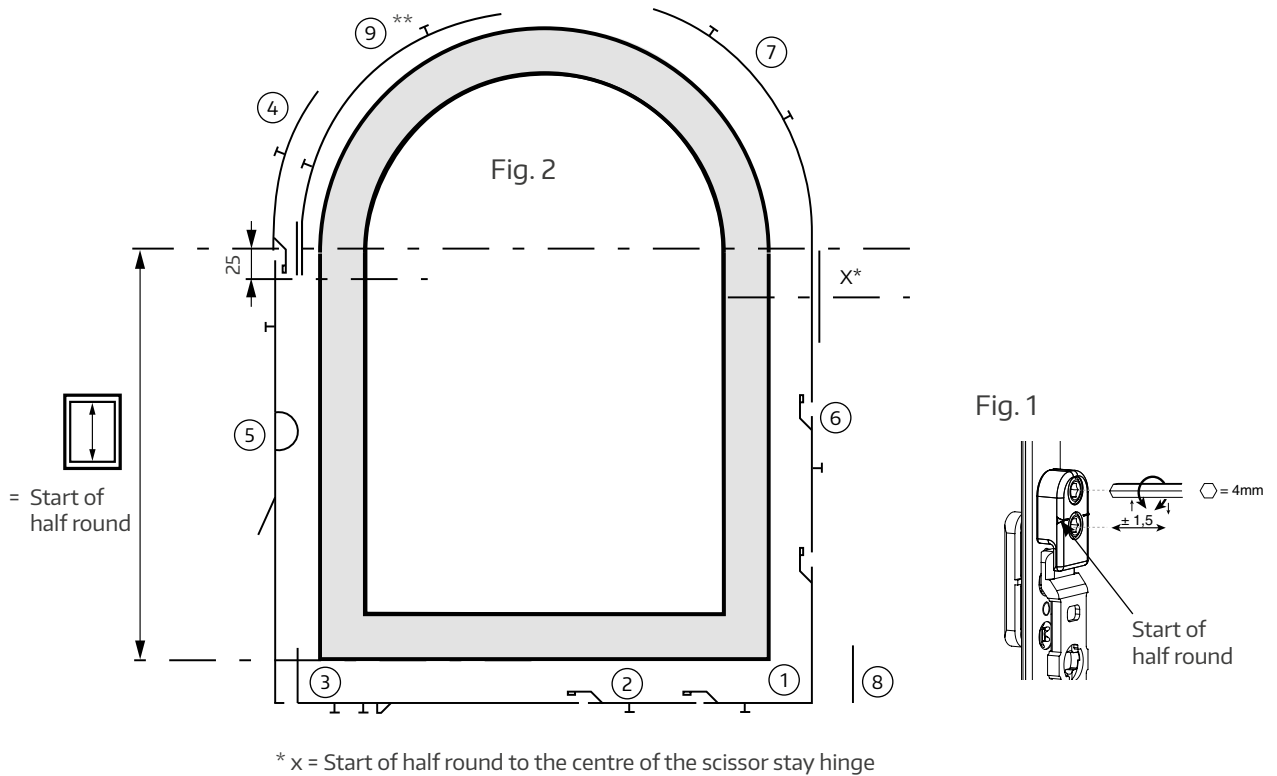
- 1 scissor stay hinge
- 1 scissor stay-hinge pin
- 1 stay support arm
- 1 pivot post
- 1 corner support



**Application diagram for half round windows
with up to 80 kg sash weight**

The use of a sash lifter striker and run up wedge is compulsory (refer to page 51/Fig. 1)!

Installation of the sash fittings components



	X
DT	44 mm

1. Insert the **corner element** ①. Depending on the SRW insert **aceplate extension / centre lock** ② and screw-fix together.*
2. Crop / extend the **half round corner element** ③, insert and screw-fix.
3. Position the **top end-piece** ④ at the start of the half round and screw-fix, or **additional scissor-stay**** ⑨ (if required).
PLEASE NOTE: Notch on stabilising stay arm = 25 mm below the start of the half round (refer to Fig. 2).
4. Crop and install the **drive-gear** ⑤.
5. Depending on the SRH, insert a **faceplate extension or centre lock** ⑥ and screw-fix with the corner element.
6. Crop the **half round scissor stay** ⑦, position the notch at the start of the half round (Fig. 1). Bring the mounted scissor stay into the tilt-mode in order to screw-fix all screws (screws under the scissor-stay arm!). Bring the scissor stay back into the turn-mode!
7. Attach and screw-fix the **corner support** ⑧ to the rebate-leg.
8. The centre-fixings (preset centred cam-fixing) are undone upon operating the fittings for the first time.
9. The sash lifter on the drive-gear must be activated by tilting it outwards.
10. **Remove** the **locking screw** (refer to the red sticker on the fitting) from the scissor-stay arm!

**From SRW 1000 mm or 60 kg sash weight

2 sashed half round window MM

Specify the SRH up to the beginning of the half round when selecting the drive-gear for 2-sashed half round windows.

- ① Drive-gear
- ② Corner element for angled windows
- ③ Corner element
- ④ Horizontal corner element for half round windows
- ⑤ Vertical corner element
- ⑥ Scissor stay for half round windows
- ⑦ Centre lock
- ⑧ Pivot post
- ⑨ Corner support
- ⑩ Half round Turn-Only hinge
- ⑪ Compression device

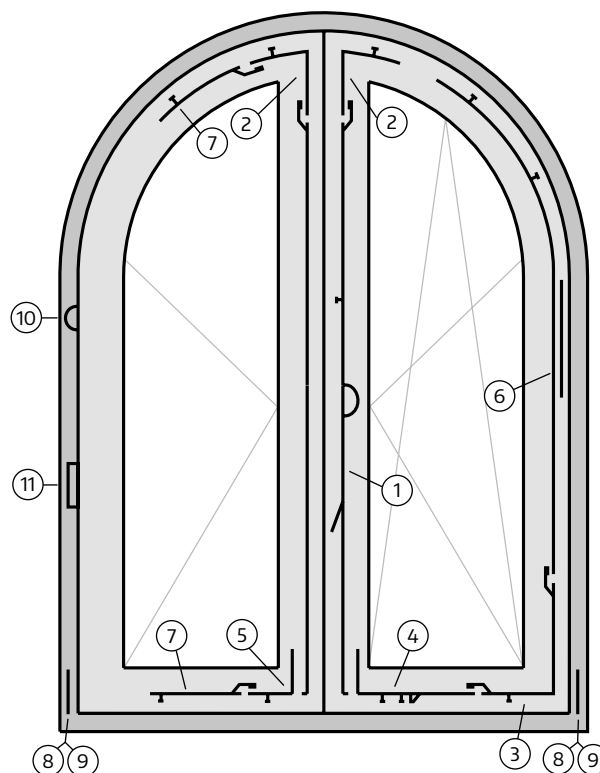
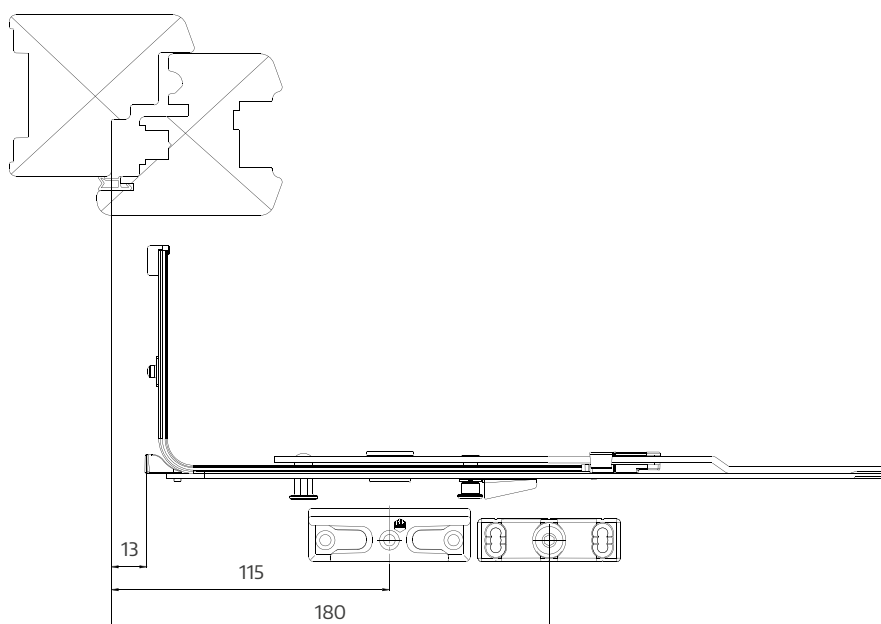


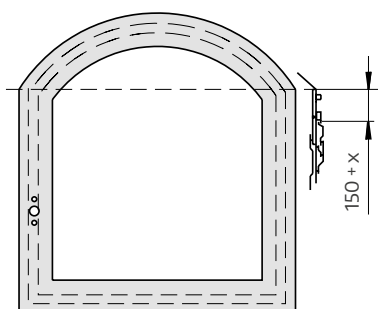
Fig. 1



Half-round fittings for use on segmental arched, angled or elliptical arched windows

Sash installation

Fittings installation: refer to the half round window instructions (page 51)



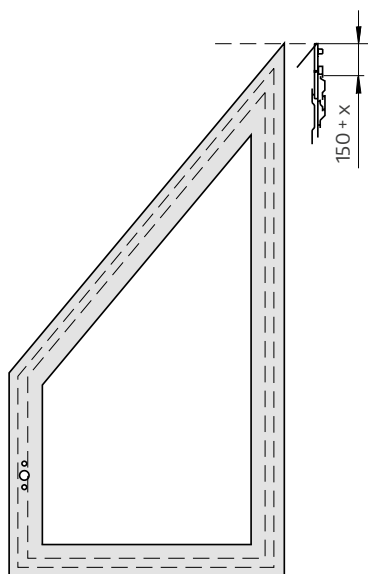
Top horizontal centre lock

Segmental arched windows

Use the angled window corner element and centre lock horizontally from an arc length of 1000 mm.

Only use scissor stay 620!

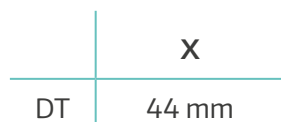
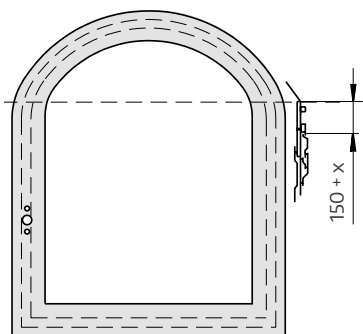
The hinge-side application range changes by 150 mm.



Angled windows

In the case of application ranges larger than +50° or smaller than -15°, a locking point cannot be located in the slope.

Please note: A locking point cannot be located in the slope!
The maximum angle of +50° or -15° cannot be reached with all profiles!



Elliptical arched windows

Here the half round scissor stay 1250 or the half round additional scissor-stay can be used as a centre lock.

Only the half-round scissor-stay 620 can be used on segmental arch or angled windows.

Please note: The hinge-side application range changes by 150 mm.

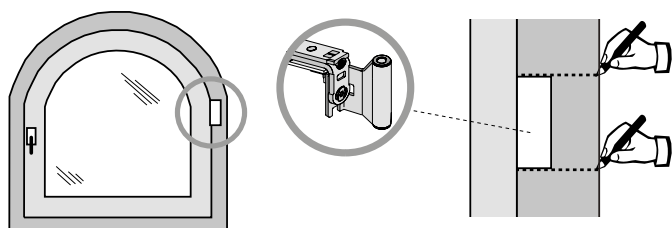
Frame installation

Strikers in the arch area must be marked manually. Drive-gear sided and bottom horizontal strikers are installed in the same manner as on 1-sashed windows.

Refer to the 1-sashed windows installation instructions for pivot post drilling procedures.

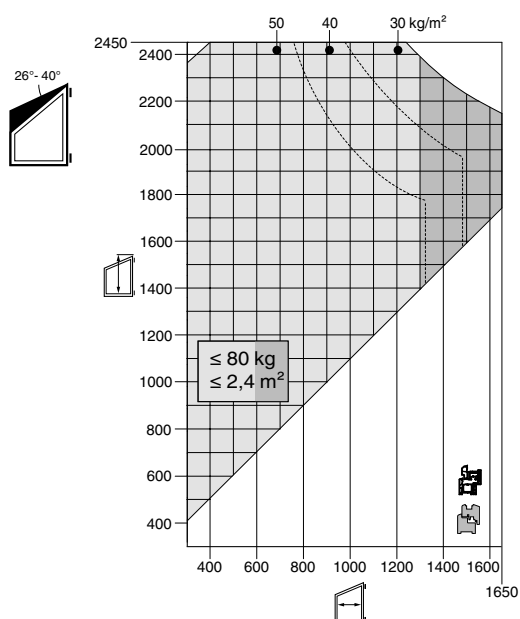
Carry out the scissor stay hinge drilling with the designated stick-on drill jig.

(Put in the sash, mark stay support arm, position stick-on jig (refer to Fig.) and predrill with 3 mm or 5 mm drill bit!)



Application diagram

Use of half-round scissor-stay on angled windows



The application diagram for half round windows applies to angled windows from -1° to -15° (refer to page 47/49).

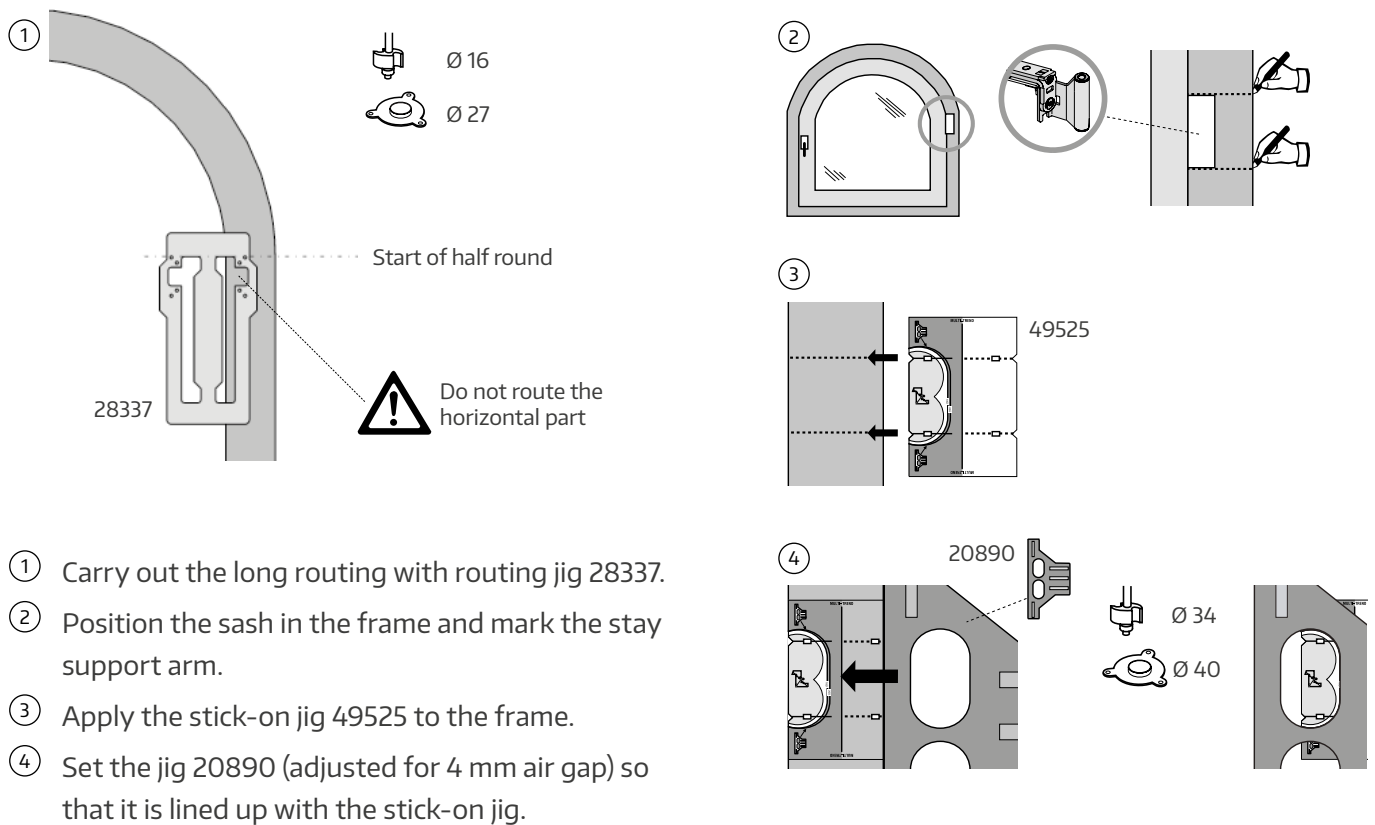
Frame component positioning

In order to position the strikers in the arched area, mark the sash cam positions on the frame with a pencil. The striker positions for the drive-gear and the bottom horizontal area of single sash windows apply here. In order to determine the position of the hinge-sided strikers, the centre lock jig is used; this is placed on the bottom at the pivot post.

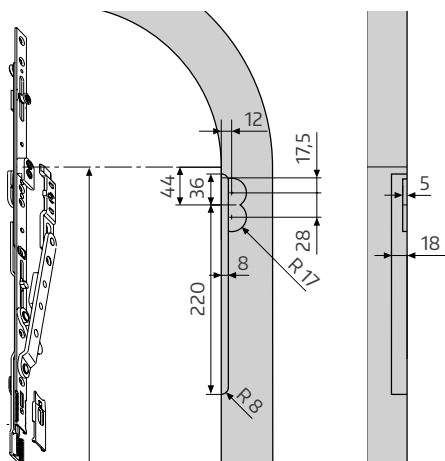
The pivot post drill-holes correspond to those of a single-sashed window.

- › Refer to the drawing below for more information on the routing for the scissor stay hinge to be routed in for 4 mm air gap and the appropriate jigs.
- › Use the self-adhesive jig 49525 for routing the scissor stay hinge DT.

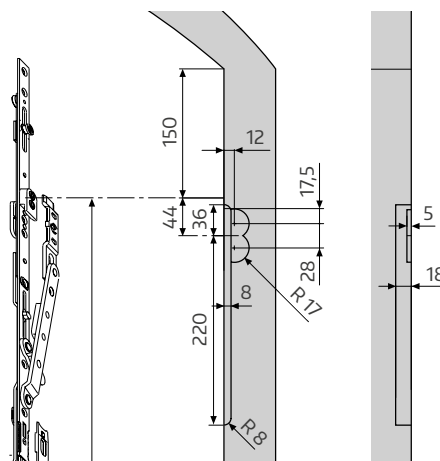
Half round window routing; 4 mm air gap (DT) with jig



Half round window routing 4 mm air gap DT

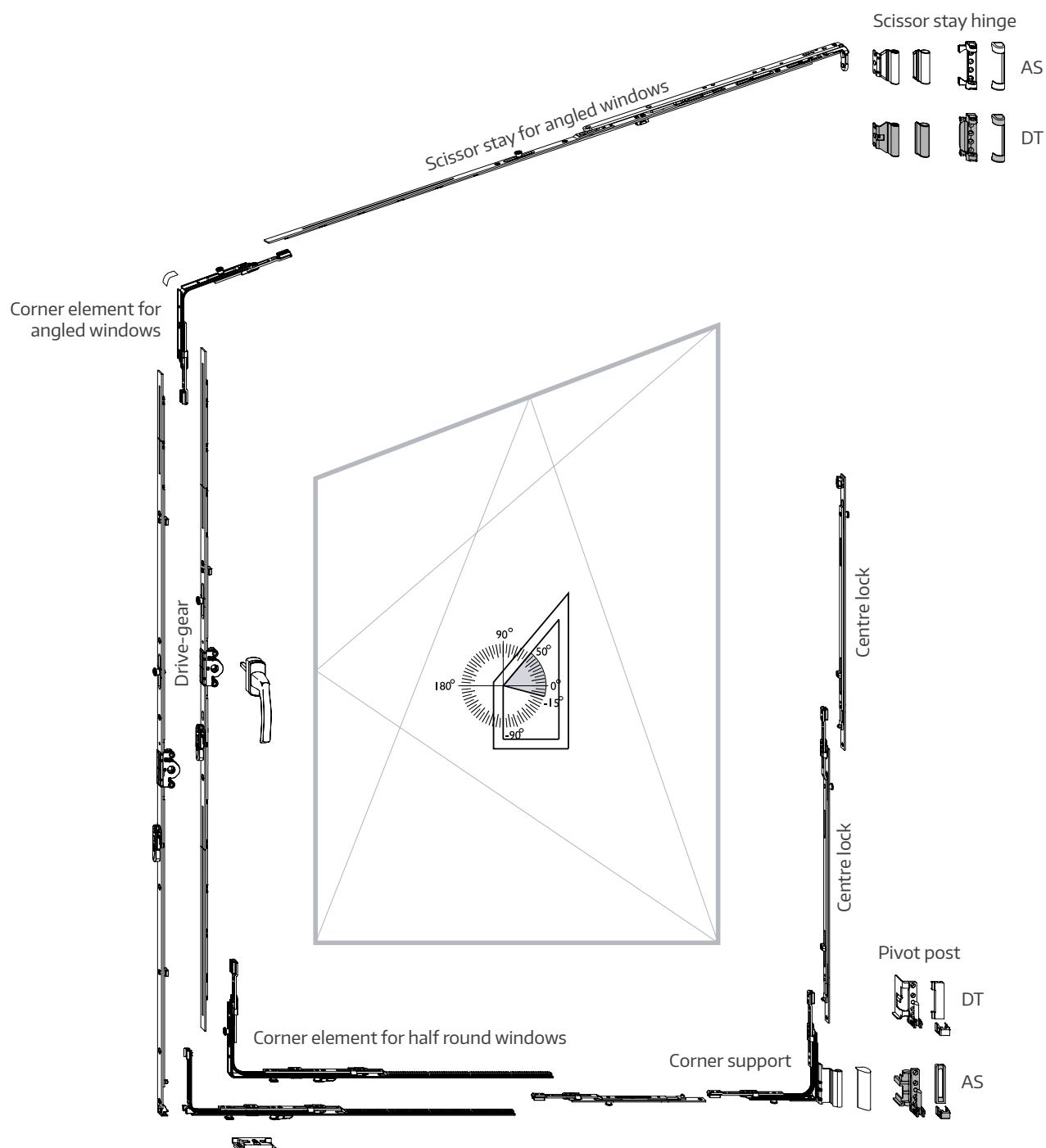


Elliptical arch routing 4 mm air gap DT



Angled window fittings

Fittings combination MM



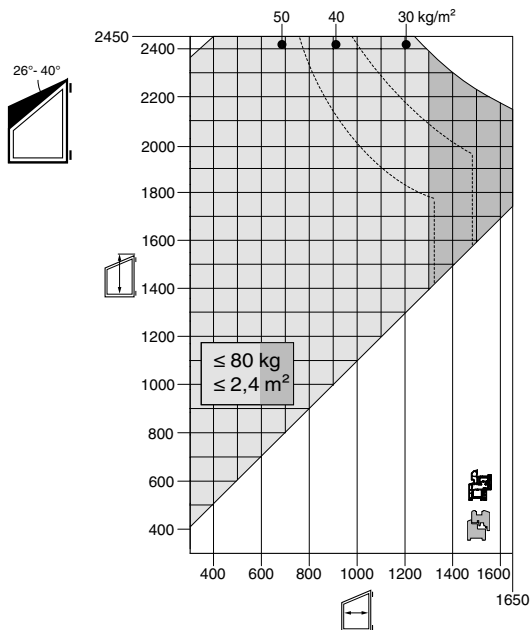
Fittings combination MM

	SRW	430 - 630	500 - 800	801 - 1050	1051 - 1300
SRH		1 angled window scissor-stay 630 1 striker i.S. 2 strikers	1 angled window scissor-stay 800 1 striker i.S. 2 or 3 strikers Use a faceplate ext. 140 or 235 from SRW 671! 140 up to SRW 810 / 235 up to SRW 905	1 angled window scissor-stay 1050 1 striker i.S. 4 strikers 1 faceplate extension 235 Use CL 1280V instead of faceplate ext. 235 from SRW 906!	1 angled window scissor-stay 1300 1 striker i.S. 4 strikers 1 centre lock 1280V Use CL 1500V instead of CL 1280V from SRH 1141! Use additional scissor-stay up to SRW 1650!
360 - 430	1 T&T drive-gear 430 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR				
431 - 660	1 T&T drive-gear 660 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 striker / 1 sash lifter				
661 - 840	1 T&T drive-gear 840 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 striker / 1 sash lifter				
841 - 1090	1 T&T drive-gear 1090 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 centre lock 1280 2 strikers / 1 sash lifter				
1091 - 1340	1 T&T drive-gear 1340 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 centre lock 1280 2 strikers / 1 sash lifter				
1341 - 1590	1 T&T drive-gear 1590 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 centre lock 1500 3 strikers / 1 sash lifter				
1591 - 1700	1 T&T drive-gear 1700 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 centre lock 1500V 1 centre lock 1280 5 strikers / 1 sash lifter				
1701 - 1950	1 T&T drive-gear 1950 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 centre lock 1500V 1 centre lock 1500 5 strikers / 1 sash lifter				
1951 - 2200	1 T&T drive-gear 2200 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 centre lock 1500V 1 centre lock 1500 5 strikers / 1 sash lifter				
2201 - 2450	1 T&T drive-gear 2450 1 corner element for AW 1 i.S. 1 corner element 1 i.S. 1 hor. corner element for HR 1 centre lock 1500V 1 centre lock 1500 6 strikers / 1 sash lifter				

Attention - do not forget!!!

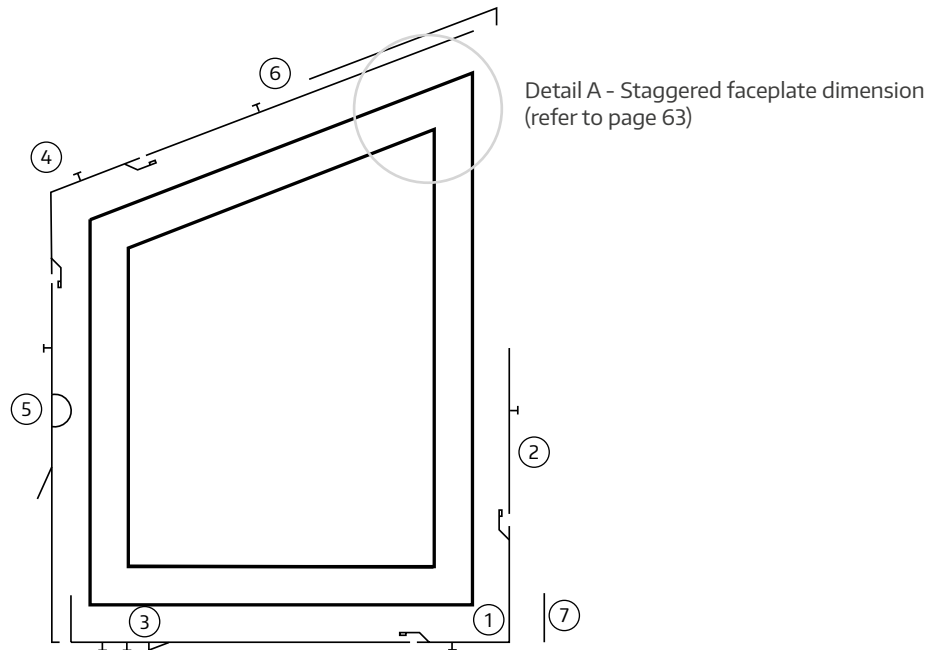
On all sizes:

- 1 scissor stay hinge
- 1 scissor stay-hinge pin
- 1 stay support arm
- 1 pivot post
- 1 corner support



Application diagram for angled windows up to 80 kg sash weight

Installation of the sash fittings components MM

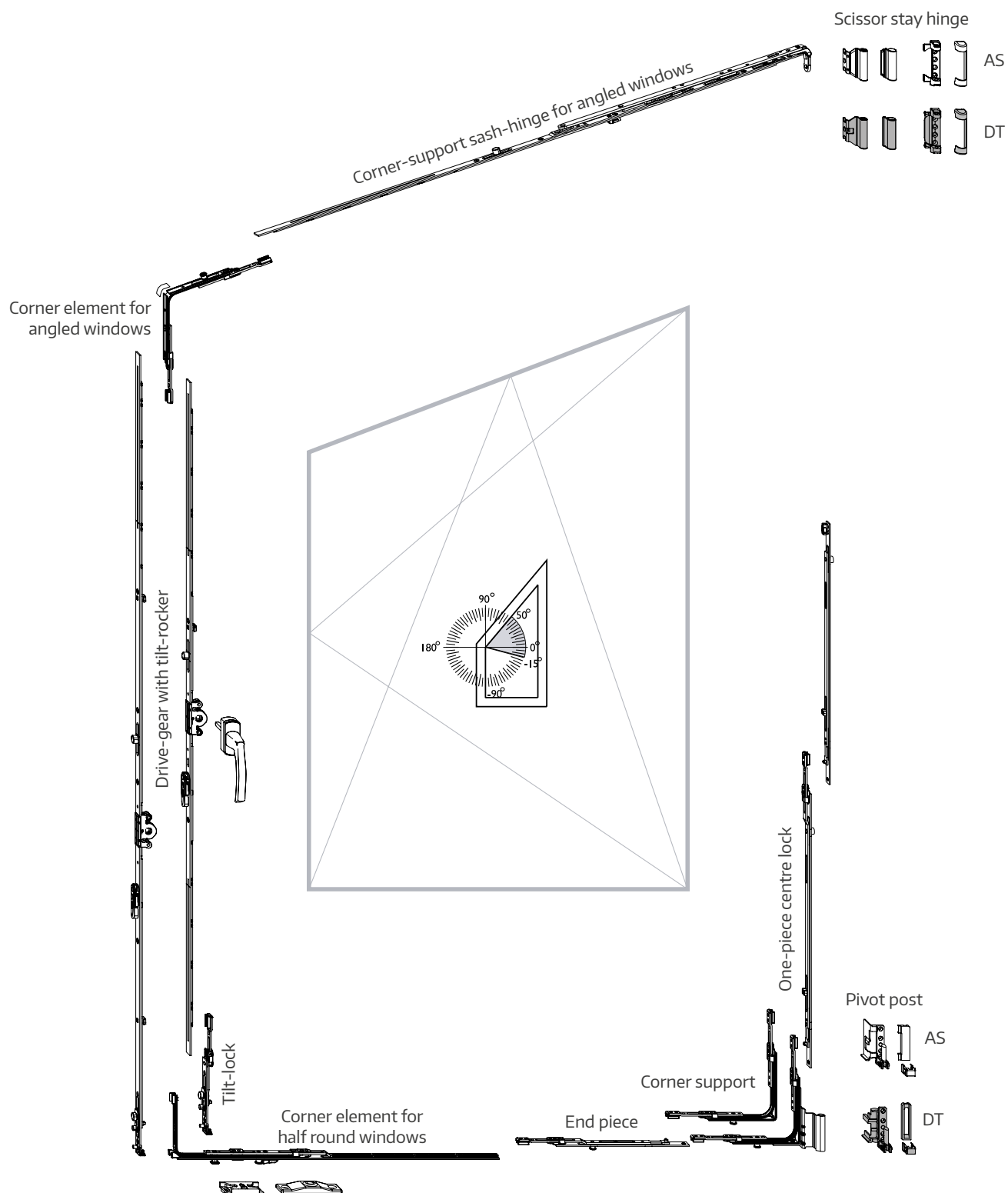


1. Insert the **corner element** ① (couple with **centre lock** ② if SRH is over 1000 mm)* and screw-fix.
2. Crop / extend the **half round corner element** ③ and screw-fix together with the corner element.
3. Install the **corner element for angled windows** ④.
4. Crop the **drive-gear** ⑤ and screw-fix together with the corner elements.
5. Crop the **angled window scissor-stay** ⑥ and screw-fix together with the corner element for angled windows (Note the staggered faceplate dimension, refer to page 63, Fig. 1).
6. Attach and screw-fix the **corner support** ⑦ to the rebate-leg.
7. The centre-fixings (preset centred cam-fixing) are released upon operating the fittings for the first time.
8. The sash lifter on the drive-gear must be activated by tilting it outwards.

* SRW and SRH of 1000 mm is a MACO recommendation, adhere to the profile manufacturers' specifications!

Angled window fittings

Fittings combination MM-KS



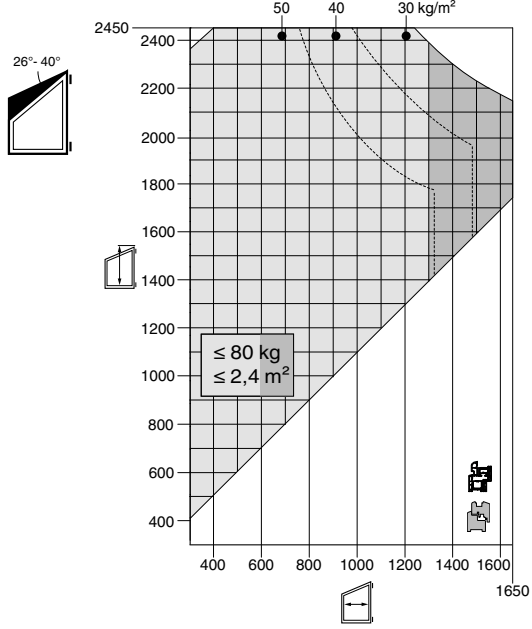
Fittings combination MM-KS

	SRW	430 - 630	500 - 800	801 - 1050	1051 - 1300
SRH		1 angled window scissor-stay 630 1 hor. corner element for HR 1 end piece 180° 1VZ 3 strikers	1 angled window scissor-stay 800 1 hor. corner element for HR 1 end piece 180° 1VZ 3 or 4 strikers Use a faceplate ext. 140 or 235 from SRW 671! 140 up to SRW 810 / 235 up to SRW 905	1 angled window scissor-stay 1050 1i.S. 1 hor. corner element for HR 1 faceplate extension 235 1i.S. 1 end piece 180° 1VZ 5 strikers Use CL 1280V instead of face-plate ext. 235 from SRW 906!	1 angled window scissor-stay 1300 1i.S. 1 hor. corner element for HR 1 centre lock 1280V 1i.S. 1 end piece 180° 1VZ 5 strikers Use CL 1500V instead of CL 1280V from SRH 1141! Use additional scissor-stay up to SRW 1650!
360 - 430	1 T&T drive-gear 430 1 corner element for AW 1i.S 1 tilt striker				
431 - 660	1 T&T drive-gear 660 1 corner element for AW 1i.S. 1 tilt striker 1 sash lifter				
661 - 840	1 T&T drive-gear 840 1VZ 1 corner element for AW 1i.S. 1 tilt striker 1 striker 1 sash lifter				
841 - 1090	1 T&T drive-gear 1090 1VZ 1 corner element for AW 1i.S. 1 centre lock 1280 1VZ 1 tilt striker 2 strikers 1 sash lifter				
1091 - 1340	1 T&T drive-gear 1340 1VZ 1 corner element for AW 1i.S. 11-pc. centre lock 1280 1VZ 1 tilt striker 2 strikers 1 sash lifter				
1341 - 1590	1 T&T drive-gear 1590 2VZ 1 corner element for AW 1i.S. 11-pc. centre lock 1500 1VZ 1 tilt striker 3 strikers 1 sash lifter				
1591 - 1700	1 T&T drive-gear 1700 2VZ 1 corner element for AW 1i.S. 11-pc. centre lock 2200 2VZ 1 tilt striker 4 strikers 1 sash lifter				
1701 - 1950	1 T&T drive-gear 1950 3VZ 1 corner element for AW 1i.S. 11-pc. centre lock 2200 2VZ 1 tilt striker 5 strikers 1 sash lifter				
1951 - 2200	1 T&T drive-gear 2200 3VZ 1 corner element for AW 1i.S. 11-pc. centre lock 2200 2VZ 1 tilt striker 5 strikers 1 sash lifter				
2201 - 2450	1 T&T drive-gear 2450 4VZ 1 corner element for AW 1i.S. 11-pc. centre lock 2450 3VZ 1 tilt striker 7 strikers 1 sash lifter				

Attention - do not forget!!!

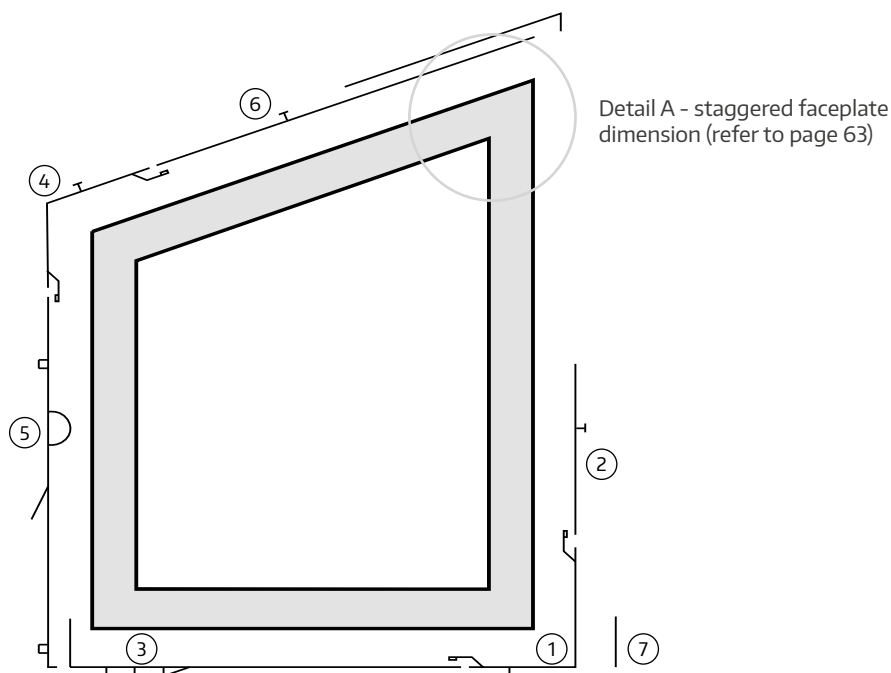
On all sizes:

- 1 scissor stay hinge
- 1 scissor stay-hinge pin
- 1 stay support arm
- 1 pivot post
- 1 corner support



Application diagram for angled windows up to 80 kg sash weight

Installation of the sash fittings components MM-KS



1. Insert the **end piece** ① (couple with the **centre lock** ② if SRH is over 1000 mm)* and screw-fix.
2. Crop / extend the **half round corner element** ③ and screw-fix together with the corner element.
3. Install the **corner element for angled windows** ④.
4. Crop the **drive-gear** ⑤ and screw-fix together with the corner elements.
5. Crop the **angled window scissor-stay** ⑥ and screw-fix together with the corner element for angled windows (Note the staggered faceplate dimension, refer to page 63, Fig. 1).
6. Attach and screw-fix the **corner support** ⑦ to the rebate-leg.
7. The centre-fixings (preset centred cam-fixing) are released upon operating the fittings for the first time.
8. The sash lifter on the drive-gear must be activated by tilting it outwards.

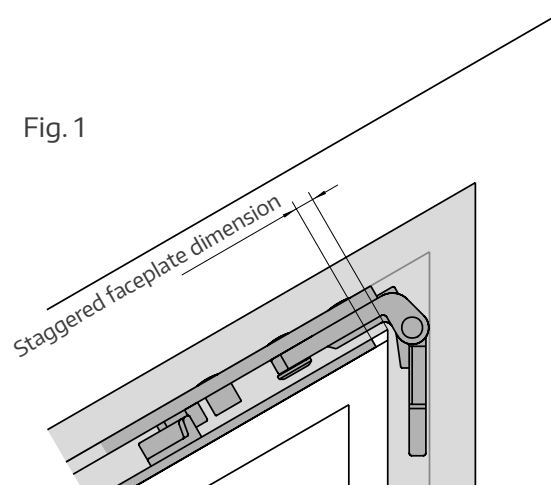
* SRW and SRH of 1000 mm is a MACO recommendation, adhere to the profile manufacturers' specifications!

Staggered faceplate dimension

Detail A:

The staggered faceplate dimension is the distance from the sash rebate edge to the stay guide.

Fig. 1



Staggered faceplate dimension on a 12 mm air gap DT

Degree of angle	Corner-bracket sash-hinge scissor-stay for angled windows	Degree of angle	Corner-bracket sash-hinge scissor-stay for angled windows
50°	1	15°	2
45°	2	10°	2
40°	2	5°	2
35°	2	0°	2
30°	2	-5°	1
25°	2	-10°	1
20°	2	-15°	1

Turn-Only sashes

The specifications for T&T fittings also apply to Turn-Only windows (application ranges, drilling and routing).

Staggered faceplate dimension when using top corner Turn-Only hinge with scissor stay end-bracket for angled windows.

Staggered faceplate dimension on a 12 mm air gap DT

Degree of angle	Turn-Only hinge for angled window	Degree of angle	Turn-Only hinge for angled window
50°	13	15°	14
45°	14	10°	14
40°	14	5°	14
35°	14	0°	13
30°	14	-5°	12
25°	14	-10°	12
20°	14	-15°	12

Please note: Rebate screw-fixed pivot posts cannot be used if a centre lock is used on the hinge-side.

Scissor stay hinge drilling

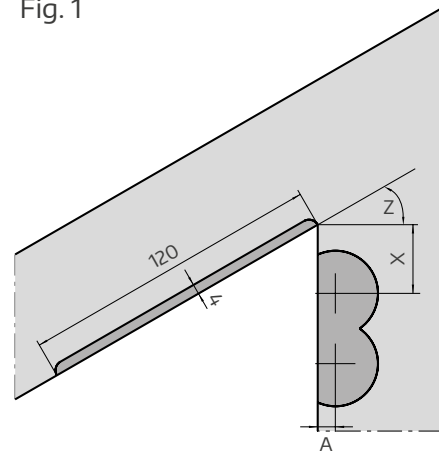
Maximum routing at 50°.

Routing depth (4 mm) reduced with decreasing angle. Particular attention must be given to ensure that the profile can accommodate this routing!

Scissor stay hinge DT (Fig. 1)

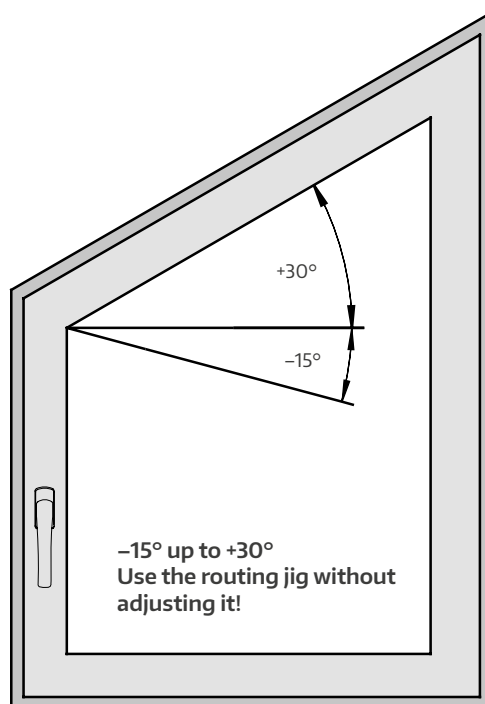
Rebate-leg	Dimension A
18 mm	7
20 mm	9
Degree of angle	Dimension x with 12mm air gap
50°	36.2
45°	33.5
40°	31
35°	29.5
30°	28
25°	26.5
20°	25.5
15°	25
10°	24
5°	23.5
0°	23
-5°	23
-10°	22.5
-15°	22.5

Fig. 1



Frame installation

Fig. 2



Routing-jig application range for angled windows (refer to Fig. 2):

The routing-jigs can be used for -15° up to $+30^\circ$. The stop-block must be removed for windows with a angled angle of more than 30° and the dimension marked as stated in the scissor stay hinge drilling drawing (left), or use the enclosed stick-on jig!

Please note!

The routing-jigs are equipped with a yellow stop-block. In the event of the air gap not complying with the window design, the tolerances cannot be compensated with the drilling-plate stop! Use shims for this purpose.

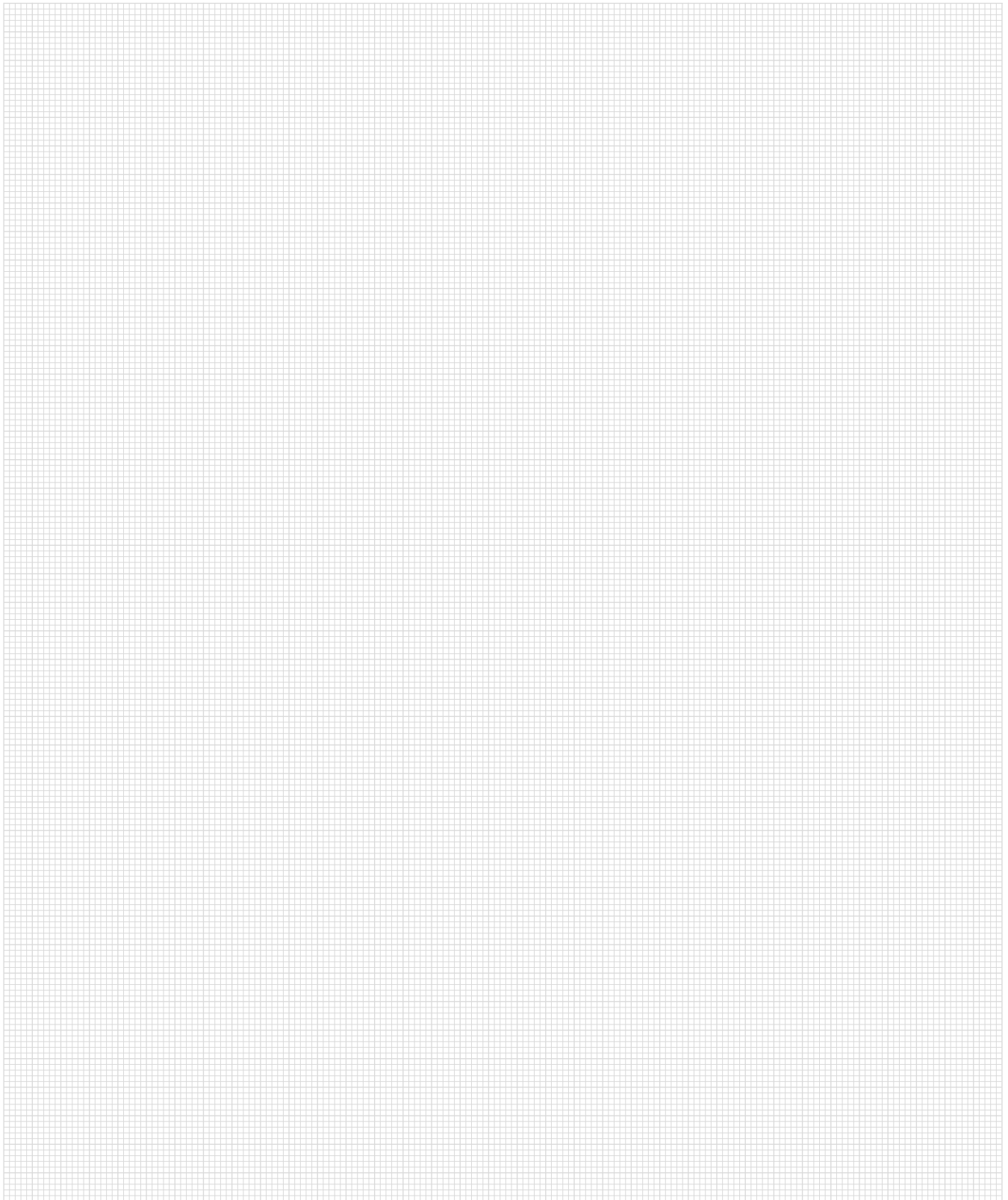
Strikers: in the angled area must be marked manually.

Drive-gear sided and bottom horizontal strikers are installed with the jig for 1-sashed windows.

For hinge-sided strikers: position the centre lock jig on the bottom hinge-side at the pivot post, insert the striker in the horizontal striker holder and screw-fix.

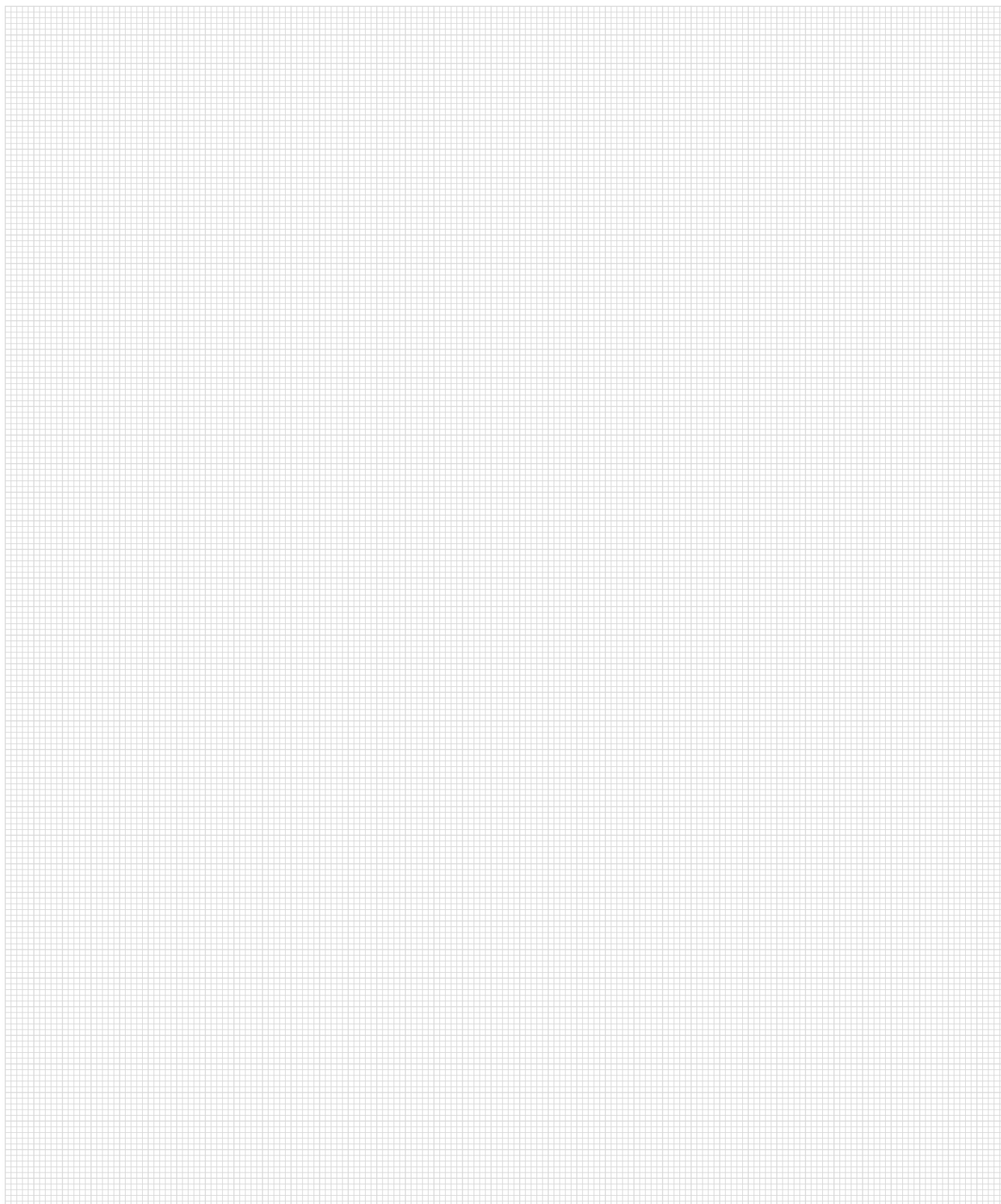
Pivot post: Refer to the 1-sashed windows for pivot post drilling procedures. Use the drilling jig for pivot post DT.

Notes



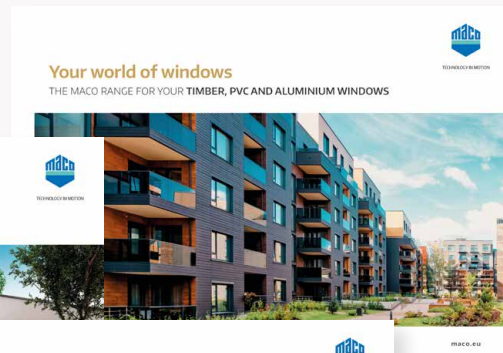
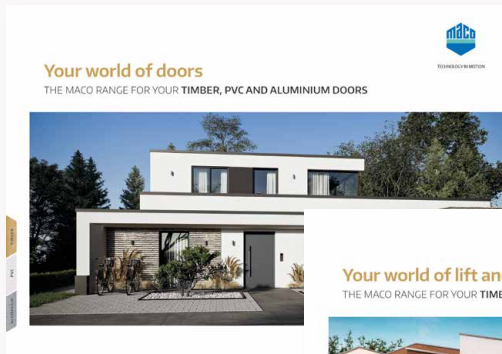


Notes



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